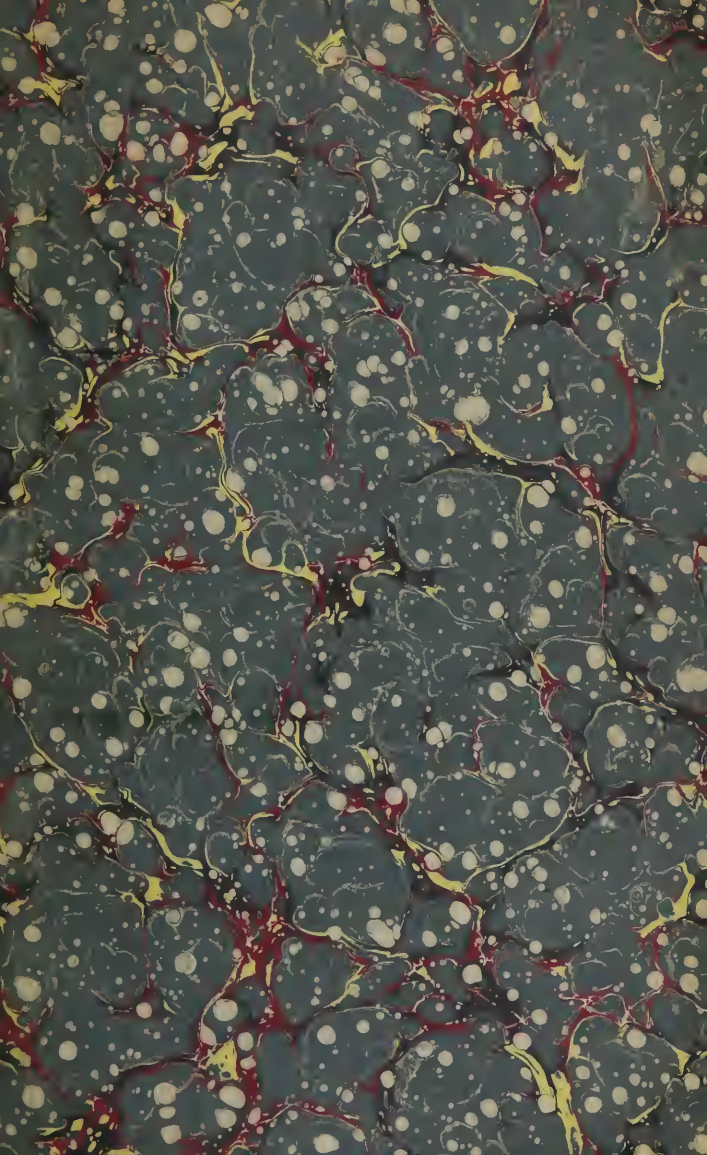


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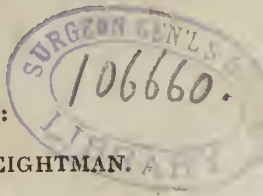
A PLAIN,
ELEMENTARY EXPLANATION
OF THE
NATURE AND CURE OF DISEASE,
PREDICATED UPON FACTS AND EXPERIENCE;
PRESENTING
A VIEW OF THAT TRAIN OF THINKING
WHICH LED
TO THE INVENTION OF THE PATENT, PORTABLE
WARM AND HOT BATH.

BY SAMUEL K. JENNINGS.

WASHINGTON CITY:

PRINTED BY ROGER C. WEIGHTMAN.

1814.



District of Virginia, to wit:

BE IT REMEMBERED, that on the twenty-fifth day
L. S. of January, in the thirty-eighth year of American independence, Samuel K. Jennings of the said district, hath deposited in this office the title of a book, the right whereof he claims as author, in the words following, to wit: "A plain, elementary explanation of the nature and cure of disease, predicated upon facts and experience; presenting a view of that train of thinking which led to the invention of the patent, portable warm and hot bath. By Samuel K. Jennings." In conformity to the act of the congress of the United States, entitled "An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned;" and also to an act, entitled "An act supplementary to an act, entitled 'An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies during the times therein mentioned; and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints.'"

WM. MARSHALL,

Clerk of the district of Virginia.

PREFACE.

ABOUT ten years ago, I was convinced, that there was too much hypothetical reasoning incorporated with every theory of fever of which I had any knowledge. They all too often failed to furnish such explanation, of the grades and states of disease, as I deemed necessary, to guard against mistake. Sensible of the high responsibilities of medical men, I entered upon a course of vigilant observation, in order to detect any important point at which our science might be deficient. Two whole years were spent without gaining any considerable advantage. At length, however, several cases of fever occurred, of unusual type, difficult to manage, and attended with symptoms which invited special attention to the surface of the patient. I formed several conjectural opinions, which afterwards were tested by additional experience, and corrected or established as facts directed.

In the years of 1806-7, a similar fever prevailed, to an extent never before known in our section of the country. Several hundreds of the sick were committed to my management, affording me ample opportunity for repeating my observations. In the course of this labor, my inquiries began to assume a more systematic form; and ever since that period my opinions have been considerably guided

by the principles which I now hold to be true. For the space of seven years past, I have paid more attention to the surface, than any other physician of whose practice I have any knowledge, and have been in habits of making more than ordinary use of artificial heat. The steam of boiling water has often served me a valuable purpose, when my patient could sit up to receive it. In cases of prostration, this, of course, became impracticable; and the moisture which this kind of steam universally produced, too much counteracted my intention, even when the condition of the patient was favorable. From time to time, therefore, different devices were tried for the production and application of heat, freed from this inconvenience, each of which was more or less beneficial, according to the facility and extent with which it could be accomplished. At length a perfect method of applying dry heat, became to me a very great desideratum. Afterwards, I had the happiness to hit upon the gas of burning ardent spirit, and finally upon the invention of a portable apparatus for conducting it to my patient.

During the whole course of this pursuit, I had no other design than that of improving my own practice. But the facility with which I have since been able to manage every grade of fever has been such, that I cannot reconcile it with my obligations to humanity, to withhold the result of my observations from the public. It is, therefore, submitted to the patronage of benevolent and intelligent citizens, as a sim-

ple method of explaining disease to common apprehension. It is laid at the feet of medical men, and claims no higher merit with them than that of a little appendix to their more profound researches. For myself, I feel no solicitude. Time and trial will necessarily determine the fate of my work.

As to the apparatus itself, considered as a convenient contrivance for administering a warm or hot bath, it needs no commendation. Every physician in town and country must know its worth. The difficulty and delay which attend any ordinary method, heretofore discovered, are equally obvious.

By this invention, every physician, and indeed every family, may be furnished with a convenient, elegant, and delightful method of applying heat. It may be put into operation in five minutes. It may be carried in a large pocket; it would scarcely incommode a pair of saddle bags, in travelling. It does not weigh three pounds. It may be applied to a patient seated in a chair, or lying on a couch, sofa, cot, or bed. It is used without water. And it can be safely applied to patients in the most helpless condition.

So far as I have been able to extend my inquiries, my system is original. Some experience, therefore, will be necessary to prepare the purchaser to derive those extensive advantages from its use, which will ultimately accrue to every one who will give it a fair and proper trial. Medical men will find but little difficulty to comprehend me at a single reading.—

Others may find it expedient to devote some time and application to the work. And where is the man who ought not to inform himself on the subject of his health? Let him avail himself of the advantage which is now offered him, and with the blessing of **THE GREAT ETERNAL**, who holds the destinies of men, he will not be disappointed of his hopes.

A PLAIN, ELEMENTARY EXPLANATION, &c.

PART I.

THAT peculiar energy, which supports vital motion in the living man, by some medical writers called *sensorial power*—by others *excitability*, is continually expended, and therefore, of course, must be continually generated in the system.

It is expended by all the motions and efforts of body and mind, exhibited in human life. The faithful laborer, and the diligent student, are equally sensible of the failure of their powers, through arduous and long continued application.

It is expended by the systole and diastole* of the heart and arteries, and by all the variety of motions which support those numerous organs and functions, the description of which, would, itself, constitute a voluminous work.

And it is highly probable that it is employed as an *associate instrument*, in the act of thinking, as well as a *subordinate instrument*, in the performance of muscular action—in the production of those motions of the body which are subservient to the will.

An energy so essential to life, and so continually and copiously expended, must be perpetually supplied, or the system would perish, through its own necessary motions.

* The two corresponding motions which receive and expel the blood.

Probably it is the grand function of the sensorium* to maintain this energy. Possibly this organ should be considered a gland of superior dignity, whose office it is to secrete this astonishing power, and, through the medium of the nerves, to distribute it to its various destinations; or it may more properly deserve the character of an electrical apparatus, which collects and diffuses vital power with instantaneous velocity. But it is not material to my purpose to ascertain by what process it is accomplished. I would insist upon the truth of this proposition only, that through the functions of the brain and nerves, there is a perpetual production or generation, and a perpetual effort for the diffusion of vital power, throughout all the parts of the system.†

In making provision for so ample a supply of this important principle, it is evident the author of nature had reference to an intended co-operation of certain extraneous powers, which should afford the necessary pabulum,‡ and act as stimuli or exciting powers, upon the fibres, and vessels, and organs, of

* The brain and its appendages.

† Perhaps it might not be inconsistent with truth to say, that this excitability, or vital power, is scarcely distinct from life itself. Consequently, the quantity of this principle, present in the system of any man, might be called his stock in life. When health abounds, there is an ability in the sensorium to produce a surplus over and above the quantity necessary for the support of the organs and functions essential to life. This surplus furnishes a daily revenue, sufficient to meet any temperate expense of labor, thought, &c. If the expense exceeds the revenue, sleep becomes necessary to replenish the loss. In sleep, the act of vision, attentive hearing, and wasteful thought, are suspended; a proportionate saving is therefore brought to the system. Sleep, of course, is truly said to be "tired nature's sweet restorer."

‡ Nourishment.

the system, so as to bring them into action, raise the action to its proper height, and maintain it through its destined period. These powers or stimuli, are aliments, heat, atmosphere, light, sounds, bodily exercise, thought, &c. to which may be added, the presence and motion of the blood in the heart and arteries, as also the several fluids, secreted and deposited in their various receptacles, or moving in their passage through their appointed tubes.

Through the influence of this vital power or excitability of the system, its vessels are susceptible of feeling the impression of the various stimuli which act upon them. And by a peculiar contractility,* with which it arms every fibre of the heart and arteries, veins, lymphatics, &c. all these vessels, in obedience to the powers of acting stimuli, perform their respective motions. Thus provision is made for the circulation of the blood, the secretion of lymph,† and the elimination of excrementitious matter. The organic motion produced for these important purposes, is called *excitement*.

If the quantity of vital power or excitability produced in the system be natural, and the quantity of nourishment and stimuli in due proportion, excitement will be equable and healthful.

In perfect health, therefore, excitement will be equable throughout all the vessels of the brain, of the lungs, of the liver and mesentry, of the stomach and intestines, &c. of the bones, of the muscles, and of the skin and cellular substance.

In maintaining excitement, vital power is expended; and the expenditure will be in proportion to the degree of excitement, for the time being.

* A power or disposition to draw themselves into narrow limits.

† A transparent animal fluid.

The application of preternatural stimuli will produce more than ordinary excitement, and of course an extraordinary expenditure of vital power.

The system, therefore, if long oppressed by the weight of preternatural stimuli, will necessarily sink into a state of indirect debility—a state in which there is a deficiency of vital power.*

By the subduction of stimuli, excitement will be diminished, and, consequently, vital power will be accumulated.

The same effect may be produced by the application of certain sedative agents, such as cold and fear. And whenever excitement is long reduced to a state below that which is natural, whether by the subduction of stimuli, or by the application of a sedative agent, the system rises into a state of direct debility, a state in which vital power is accumulated.†

These remarks, however, though certainly true, admit only of limited application.

Although preternatural stimuli are calculated to produce extraordinary excitement, yet if applied in a certain gradual manner, the system will acquire an habitual capacity to generate a commensurate portion of vital power, and by new modelling its movements, will assume a standing, analogous to that of natural excitement. This process is performed under the control of the same laws of the system by which it adapts itself to different climates, and in

* A man staggering from the use of ardent spirit, or from chewing tobacco, furnishes an instance of this kind of debility. He has been checking too heavily upon his stock in life. The same or a similar effect may be produced by a sickly atmosphere. And such is the state of things in most cases of sudden and dangerous fever—as the yellow fever, violent bilious fever of almost every grade, &c.

† This is the condition of a man recently weakened by loss of blood; by the operation of a violent cathartic, or by excessive fasting.

every climate, to the diversity of seasons, modes of living, &c. which are found to prevail.*

But when the stimulant agent is powerful, and is suddenly applied, or when applied a sufficient length of time, it may overwhelm the system with all its resources for adaptation, and raising the excitement too high, produce indirect debility.

So, also, when there is a gradual subduction of stimuli, and the excitability is accumulated in a small degree only, the system, by its own powers of reaction, may raise its excitement, and find a natural balance.† But a sudden and copious, or a frequently repeated subduction of stimuli, may produce a pernicious degree of direct debility.

Whenever debility of either of these two descriptions prevails to a considerable extent, it places the system in a state liable to disease, and in this view, debility is well enough said to be the predisposing cause of fever.

When vital power is sufficiently accumulated to place the system in a state liable to disease, for the sake of distinction, I will take the liberty to call it *predisposition with accumulated power*.

And when the energies of life are sufficiently prostrated to place the system in a state liable to disease, I shall call it *predisposition with exhausted power*.

In abstracted speculations upon disease, we may lay down discriminations, and rigidly regard classical

* By the same laws the system is saved from destruction, when men shamefully impose upon it those oppressive and poisonous stimulants, tobacco and ardent spirits.

† The loss of a single meal, or of half a pound of blood, seldom much incommodes a man in pretty good health.

arrangement in all our disquisitions upon the subject. But disease, in its actual assaults upon the system, is not always ushered in under the auspices of either of these predisposing circumstances, wholly abstract from the other. They are commonly blended, and one or the other abounds, according to the nature of other co-operating powers, which are to be considered as remote causes of fever.

Predisposition to disease, with accumulated power, may be induced by too much sleep; by taking in suddenly too much nourishment, as is frequently done by eating and drinking at a feast; by taking too little exercise for the demands of the system, &c. The same or a similar state of things, may be effected by the application of certain agents, which possess sedative powers. As such, I shall specially consider the passion of fear, and the negative agent *cold*. It is a fact well known to every man of observation, that fear, like cold, produces paleness of countenance, diminution of strength, increased frequency of the pulse, and convulsive trembling of the muscles.

But *cold*, more frequently than all other agents of this class, is the remote cause of predisposition to disease, with accumulated power.

Predisposition with exhausted power, may be induced by loss of sleep; by excessive labor; by a continued habit of eating too much, or too little; or by eating articles of diet too stimulant or indigestible in their nature; by violent anger; by grief; by disappointed love; by intemperate indulgence in venery; by daily dram drinking, or chewing or smoking tobacco; by stimulant gasses exhaled from marshes, &c.; by whole regions of atmosphere, rendered more than ordinarily stimulant, by unknown combinations; and by the agency of heat, in certain seasons and climates.

Cold and heat are necessarily and perpetually opposed to each other. Heat, in a certain appropriate temperature, is the natural ally of life. Cold, on the contrary, is the universal companion of death. Without some degree of warmth, the vitality of the fibres cannot long be preserved. The motions essential to life, cannot be maintained without heat in a considerable degree. I feel myself at liberty, therefore, to speak of *cold*, in the sequel of this work, as the great enemy of human life, which is perpetually seeking for the extinction of the vital heat of every man; inasmuch as, in a comparative view of the temperature of the surrounding atmosphere, every man is daily more or less exposed to the sedative effects of this agent. 'Tis true, there are many days in midsummer, in which the degree of the atmosphere, approximates towards the point of blood heat. At night, however, the thermometer universally sinks, so as to fall considerably below that point. When the weather becomes thus hot, the vessels on the surface are so highly excited by the heat of the day, that before the approach of night, the system is placed in a state of indirect debility.* The chilness of the night, therefore, has an effect upon the vessels of the skin, though less in degree, yet similar to that which is produced by remaining too long in a moderately cold bath. The same influence repeated day after day, must at length bring about all the debilitating effects of cold. That sense of heat which is frequently felt through the evening and early hours of a hot summer's night, affords no conclusive argument against this position. If I am not misguided

* As the system is prepared to generate a certain portion only of vital power, in a given time, to be equally distributed throughout all its parts, it therefore necessarily follows, that much extraordinary excitement on any one part, will tend to prostrate the whole. Thus, the heat of summer acts on the skin and lungs only, but the increased action of the skin induces general debility.

in my opinion upon the subject, the following considerations sufficiently explain the apparent difficulty.

When we first rise in the morning, and with the skin uncovered, approach near to a good fire, it instantly produces a painful sense of heat. If we sustain the pain a few minutes, the excitement of the skin rises to a point at which that sensibility of heat is extinguished, and we can maintain the same distance from the fire for some longer time, without inconvenience to our feelings. At length, however, the pain of heat will again become so intense, that we are compelled to take a greater distance. If the distance to which we remove, be just sufficient to relieve the pain, and is maintained firmly for a sufficient time, a free perspiration will ensue, and the sense of heat will again become oppressive, inso-much, that at length it will be insupportable. If we then retire almost without the reach of the heat of the fire, a sense of heat is still felt on the skin, and a profuse perspiration continues.

Thus, the skin, heated by the atmosphere of a summer's day, passes through all these changes, though in a more gradual manner; and in the evening, although the temperature of the atmosphere is lower, yet, in consequence of the intense action produced in the course of the day, the excitement of the skin, through indirect debility, falls considerably below that which is natural; so that through the chilness of the evening, the absorbents of the surface are rendered weak, and the perspiration which continues, considerably imitates the sweat of death. In death the arterial action is weak, but as it stands associated with the heart and central vessels, it is, therefore, stronger than the correspondent action of the absorbents, which commence upon the surface: and as death commonly begins upon the absorbents, the

power by which the fluids are returned, is extinguished before the impelling power of the artery subsides. The dying man, therefore, continues to sweat, until he expires. In a similar way, through indirect debility, in a hot summer's day, the absorbents are so affected, that profuse sweating is induced: and through an increase of debility, consequent upon the chilness of the night, the same is increased. We have seen that in the morning, a moderate degree of heat produces a painful sensation. In the morning the action of the vessels of the skin is weak, and therefore their sensibility to heat is increased.* So, also, after the vessels of the skin are indirectly weakened by the heat of the day, a sense of heat becomes more and more oppressive, as the debility increases, till at length the sensibility becomes so acute, that the heat of the circulating fluids brought to the surface, is painfully felt.† That

* I think there is in the animal system of man, a peculiar competency to heat, which physiologists have not sufficiently developed. In pursuing this important subject, it will be found, that a certain degree of deficiency of heat, produces the kind of sensibility to its approach, which is here referred to. If, however, the deficiency be extended to a certain further degree, it is followed by a remarkable insensibility to the impression of this agent, which is not easily corrected, but by an approach to the fire of considerable duration. Perhaps the greatest and most dangerous accumulations take place when the system becomes thus insensible to heat.

† This must be the true explanation of the inward heat and thirst, which attend cases of direct debility from hemorrhage, or other causes. In further proof of this, in fever of low type, when there is great deficiency of excitability, there is always less thirst than in cases where the system has been reduced by evacuation. The insatiate thirst consequent upon loss of blood, or the operation of a violent dose of medicine, is increased by drinking cold water, because the sedative effect of cold upon the fauces and esophagus, increases their sensibility to heat, and therefore the heat of the circulating blood and fluids of the parts is the more painfully felt. Thirst of this description is always most certainly corrected by hot and stimulant drinks.

it cannot be the heat of the surrounding atmosphere of which we complain, is obvious, inasmuch as perspiration is profuse, and must continually furnish water for evaporation. Besides, it appears on trial, that a man sweating under these circumstances, finds his skin cold to his own touch. The least degree of covering increases the distress, whilst an entire removal of covering affords very little relief. Evaporation on the surface, brings this very partial relief, which, in ordinary circumstances is all we are able to find. Fanning is, therefore, grateful, as it hastens evaporation. But the moment the fanning is suspended, the sense of heat is increased, by the increased sensibility to heat which the fanning produces. Any degree of covering is calculated to retard an elimination of heat, and therefore becomes quite insupportable. In the midst of this inconvenience, commonly ascribed to the heat of the surrounding atmosphere, an approach to the fire, for a sufficient length of time to rouse the action of the absorbent vessels up to a state of balance with that of the arteries, will correct the distress, and afford a practical argument in confirmation of the foregoing observations.

If such considerable effect can be produced by the agency of the heat of one day, and that too when the seasons regularly progress, what may we not expect when the same effects are again and again repeated, in the midst of vicissitudes of weather? And if the condition of the surface can so completely involve the whole mass of excitement, ought not medical men to pay more attention to this important membrane?

It is obvious that the skin, which spreads so broad a surface open to the agency of the surrounding at-

mosphere, must, therefore, be equally liable also to come under the sedative power of cold. Destined to be the covering of the whole system, it is prepared, in safety to its own existence, to undergo frequent alternations of increase and diminution of excitement. And though at one time highly excited; at another subjected to long continued collapses of its vessels, and almost to entire privation of excitement, it nevertheless retains so much vitality as to escape gangrene. If, therefore, I repeat it, the heat of one summer's day can so increase the action of the vessels of the surface, as to bring the system into a state of indirect debility, ought we not to expect corresponding influences equally great from the sedative power of cold? In fact, the one occurrence happens as frequently as the other, and both have been repeated from time immemorial. The great advantages, however, which might have resulted in favor of medical science, from a due attention to these reciprocal vibrations of excitement, appear to have escaped the notice of those worthies who have contributed so much to the enlargement of her treasures. Engaged in deep researches after truth, *observations upon the surface* have been left for men of less ability.

I have taken considerable pains to satisfy myself with respect to the probable proportion which the skin and cellular membrane bears to the remaining soft solids of the system. I have inquired of many respectable physicians. And I had the honor of a correspondence upon the subject, with the ever venerable doctor Rush. I am, however, still left in uncertainty—Shall therefore satisfy myself, for the present, in the supposition, that the skin and cellular membrane as spread over the surface, in most

cases, may nearly, if not fully, amount to one fourth of the soft solids. In many fat persons it is certainly much greater. If, then, the sensorium continues its functions, and produces such a quantity of vital power as is sufficient for the supply of the whole mass of the system, whilst at the same time, a proportion approximating towards one-fourth part of its destined expenditure, is suspended through the influence of cold on the surface, an accumulation of power must speedily be effected, to an amount sufficient to place the system in a state of predisposition to disease. The weight of this consideration is much increased, by the great sensibility which is brought to the skin of most people through the warmth of their clothing, in almost every stage of life. Did mankind universally live in simple style, and from their birth put on no more than a single garment, it is probable, this membrane would assume an habitual power of resisting cold more effectually, or that the whole system would be adapted to such a state of things, in which the skin should require a less portion of excitement, and of course have a less share in the formation of disease. But so long as men are raised effeminately, and the weather is subject to vicissitudes of temperature, we may expect to find the skin deeply involved in every case of predisposition.

The progress of the seasons may serve to regulate some further observations upon this subject.—During the severity of winter, most people defend themselves against cold by putting on the necessary additional clothing, and by having frequent recourse to good fires. The salubrious atmosphere of winter, supports a vigorous action, and the uniformity of the weather, gives the system ample oppor-

tunity to avail itself of its powers for adaptation, which circumstances prove effectual to maintain a proper balance. Any momentary suspension of excitement, produced by the sudden application of intense cold, is followed by speedy reaction, inso-much that the pernicious effects of cold in the winter and spring seasons, are almost exclusively produced in moderate weather, when the degree of cold is not sufficiently intense to compel the patient to have recourse to the fire, when the accumulation of vital power is not sufficiently sudden to induce an immediate reaction of the vessels of the surface. Intense cold, suddenly applied to any system, armed with good stock of energy, produces an immediate reaction, imitating the result of a stroke upon an elastic body; whereas moderate cold gradually applied, insidiously takes possession of the surface, and resists a return of excitement, until the vessels of the skin are too much debilitated for speedy reaction. During the time of this suspension, an accumulation of vital power is generated in the system, which necessarily progresses towards a predisposition to disease, with accumulated power. This is the state of things in every case of fever in its simplest form; and such is most commonly the form of fever, as it occurs in the winter and spring seasons of the year. During these seasons, as above stated, health abounds. Vital power is daily generated to an amount commensurate to the full demand of all the functions of the system. Hence it follows, that by such suspension of excitement upon the vessels of the surface, as is produced by exposure to cold, sometimes for one day only, an accumulation of excitability is induced, which subjects the system to an attack of pleurisy the succeeding night.* And this the more certainly happens, if the

* If every branch of the blood vessels were, in every case, at all times armed with equal and well-poised tone, an instance of

exposure be immediately preceded by some great exertion, through which the energies of the system are for a short time considerably exhausted. By such exhaustion there is less power to maintain that grade of excitement on the surface, which is necessary for the resistance of the sedative effects of cold, and before the system can rally itself, the enemy takes possession of its outposts; and predisposition with accumulated power is induced. Here, then, we have a case, in which there is supposed to be present, a quantity of power more than sufficient for the performance of all the functions of life, whilst the vessels of the surface, perhaps nearly one-fourth of all the soft solids, are in a collapsed state, pre-

inflammation would rarely occur. But this is not the case. A large majority, male and female, through hereditary or accidental causes, have some one or more of their organs weaker than the rest. It therefore follows, that when fever is excited to a powerful height, or is a long time kept up, the weaker vessels are always in danger. If the impulse of the heart and arteries, is made with a power commensurate to the tone of the strongest vessels, the blood will inevitably be impelled into the weaker branches, with a force sufficient to expand them beyond their natural dimensions. This expansion of the fibres, causes the pain, and the enlargement of the diameters of the capillary vessels, gives room for a misplacing of the red particles of the blood. Hence the extravasation of blood or serous fluid, which produces the cough in pleurisy. A simple fact will more fully explain the subject. Let a finger, for instance, receive a blow from a hammer, so as to weaken its blood vessels. The artery which conveys the blood into the finger, continues its action as if no such accident had happened. The bruised vessels, not having their natural tone, are expanded beyond their ordinary capacity. The enlargement of the vessels, which, in this case, is obvious to the sight, produces the pain: and the swelling is increased at every pulsation of the artery, which is commonly said to throb. Except the cause of the weakness in the vessels only, something like this happens in every case of inflammatory fever, whether it be determined upon the brain, the lungs, the viscera, or muscles. The various changes which are effected upon the vessels and fluids, when the injury thus induced is cured by a resolution of the parts, do not necessarily claim my notice.

pared rather to resist, than to encourage a return of excitement. Of course, by an effort for a restoration of a balance, the excitement of those vessels which are prepared for action, must necessarily become excessive. Anatomy has taught us, that the whole current of circulating blood, returning to the right auricle of the heart, is necessarily impelled into the pulmonary arteries, and returned again by the pulmonary veins to the left auricle, before it can possibly be circulated by the aorta, or great distributing artery, throughout the system. The surface being collapsed and languid, the pulmonary veins, probably by the laws of association, or sympathy, partake of the same languor, whilst the heart and pulmonary arteries are necessarily active, and ready to receive a determination of this accumulated power. In a few strokes of the heart, the pulmonary arteries so completely overwhelm the languid absorption of the pulmonary veins, that an engorgement of the capillary branches necessarily ensues. By this engorgement the whole mass of excitement is retarded, and almost locked up in the lungs. Hence the chilly sensation which is felt at this stage of the disease. Whether animal heat depend upon the development of caloric* in the lungs, or whether it depend upon mechanical attrition, or whether it be the result of a chymical decomposition of the fluids, which is taking place in the glands and secretory vessels, or whether it be co-ordinate with excitement, and is a necessary result of the action of stimuli upon the fibres of the system—whether any or all of these considerations are involved in the production of animal heat, it must equally follow, that there is a deficiency of this principle in the system whenever there is a deficiency of excite-

* Elementary heat in an abstracted form.

ment.* That there is a deficiency of excitement taken in the aggregate, is obvious. The skin is pale, cold, and collapsed; the lips, and the skin around the mouth and eyes, are livid, and the pulse, though tense, is small and frequent. That there is an engorgement of the vessels of the lungs must also appear. There is felt a sense of fulness or tightness in the chest, respiration is quick and laborious, and, as before stated, the pulse is in a state which indicates it. Moreover, at the height of this struggle, the pain is first felt, and frequently more or less blood is expectorated. The chilly sensation, therefore, may fairly be considered to be the effect of a positive deficiency of animal heat. The deficiency of heat necessarily follows a deficient quantity of excitement. And the excitement is deficient in consequence of a collapse of the vessels of the surface, co-operating with an engorgement of the pulmonary arteries.

The convulsive shiverings are produced by a translation of vital power, from the blood vessels to the muscles. The great accumulation of excitability which has raised this terrible storm, is now impetuously seeking an avenue for its expenditure. The system, defeated in its attempt to go off through the most direct and natural channel, that of ordinary excitement, to save itself from destruction, by an accumulation of excitability, according to the principles of Dr. Brown, has recourse to some other alternative. A determination is accordingly made upon the muscles, through the medium of Dr. Darwin's Laws of Volition. The shivering, therefore, instead of being an alarming symptom, proves the

* The heat which is felt on the surface of a patient, in a continued or typhus state of fever, affords no argument against the truth of this conclusion. The apparent accumulation of heat, is the result of debility, in consequence of which the fluid necessary for its evaporation is not supplied; which will more fully appear in the sequel of this work.

presence of that power of adaptation, by which the system avails itself of its alternative; and so far is it from being an unfriendly movement, that it is probable no other, at this period, could prevent destruction.

Through this convulsive shivering of the muscles, there is brought about a very hasty expenditure of vital power. Any violent muscular exertion, continued for a few minutes only, so exhausts this power, that it becomes difficult for the system to maintain the necessary motion of the heart and lungs:—and if the muscular struggle be continued too far, the blood vessels may be so completely disarmed of power, that they will fail to circulate the blood, and instantaneous death will be the consequence.—This is the state of things when a man, or any animal, through fear, runs himself to death. Pain, also, in a degree proportioned to its severity, expends this power; as will be more fully seen in another place.

When, therefore, convulsive excitement, together with muscular shiverings and acute pain, have sufficiently exhausted the accumulation of vital power, which in the predisposition seems to be concentrated upon the heart and pulmonary arteries, the pulmonary veins are able to receive and give a free passage to the whole current of circulating blood, the chill subsides, and the hot stage of fever commences.*

* The form of disease here described, is commonly called a pleurisy; but it is in reality an inflammation of the lungs. Indeed I doubt the existence of a pleurisy as an original affection. It is true, that by dissection, it is proved that the lungs sometimes adhere to the pleura. It is most probable, nevertheless, that the lungs, when tumid by inflammation, are kept in contact with the pleura, until the adhesion is formed.

From this view of the subject, it appears that in the chilly state of fever, in every case, the pulmonary vessels are in the greatest danger; as in that state, the *lesion*,* which produces the pain and consequent expectoration of blood, always takes place. And whether the morbid action proceed so far only as to effect a state of congestion, or whether the violence of the struggle be sufficient to rupture one or more vessels, it is the lesion exclusively, which properly constitutes an instance of inflammatory fever; for if the pain do not take place in time of the chill, it frequently happens that all the appearances of the chilly state of fever, and the consequent hot fit, pass away, without any considerable subsequent inconvenience to the patient.

It will also appear that the greater the stock of vital power present in the system, the more certain and powerful must be the chilly state of any case of fever which may occur: and in the converse, the greater the prostration of the system, the more certainly such case of fever will be ushered in without a chill.†

Thus we have seen, that in the simplest form of fever—that which occurs in the winter or spring seasons of the year, cold alone may be considered as the remote cause. If violent exertion be added, so as to exhaust the energies of the system, and render it less capable of resisting the sedative agency of cold, the case will be less simple in its appearances, more tedious in its progress, and more difficult in its management: and this variation, with its concomitant circumstances, is entirely the effect of

* Lesion, used by physicians:—taken from the Latin word *læsus*, to hurt,—an injury, implying more or less disorganization.

† Many observations, made with much care and attention, justify me in asserting that this is a fact of great moment, in forming an estimate of the quantity of vital energy present in any given case.

a greater or more extensive collapse of the vessels of the surface.

Having taken this brief view of fever, as it occurs in the most healthful seasons, I now proceed to consider its appearances when the seasons become sickly.

I will first take up an ordinary intermittent; and shall consider it a fortunate occurrence, if it should be allowed, that I have discovered a key for unlocking the long hidden mysteries of a mode of disease, which has been thought almost or altogether unaccountable.

In treating the progress and appearances of a simple inflammatory fever, notice has been taken of the circumstances which occur in the chilly stage. The great doctor Rush has encouraged me to believe, that as well in medical inquiry as in religion, truth is a unit: and one of the settled rules for philosophizing requires, that we should refer similar effects to similar causes. Am I not warranted then to believe, that an engorgement of the pulmonary artery, co-operating with a collapsed state of the blood vessels on the surface, is equally the cause of the chilly state of fever in every ordinary case?

That a collapsed state of the surface, is a universal appearance in the commencement of fever, is confirmed, not by my observations only; it is known to every physician. Doctor Cullen has predicated his whole system of the theory and practice of physic, upon the same fact. His opinions and doctrines upon the subject of spasm, are justly exceptionable. His facts, however, must be admitted; and whilst they afford conclusive evidence in my favor, they must continue to do honor to that accurate observer of nature, till disease shall cease to commit ravages upon the race of man.

The primary, remote cause of this form of disease, possibly, is the poisonous gas which exhales from marshes, which, in an indirect way, produces partial debility, or predisposition with exhausted power. But it is a fact, that in those regions where intermittents abound, whilst the days are commonly very warm, the nights are exceedingly cold for the season of the year. The atmosphere is daily heated by the rays of the sun, but the chilness of the wet earth, together with the exhalations proceeding from it, afford such a perfect conductor for the heat, that the sun is scarcely below the horizon before it vanishes away. The heat of the day co-operating with the remote cause, the marsh miasma, raises the action of the system so high as to induce indirect debility. The vessels of the surface are therefore incapable of maintaining a sufficient portion of excitement to resist the cold of the night. Each succeeding night more and more of the surface is brought into subjection to the sedative power of the enemy, till at length the outposts of the system are so completely conquered, that though the excitement, considered in the aggregate, is less than natural, yet it is confined to limits too narrow for the expenditure of the powers of the system. An accumulation of power, a determination upon the lungs, and a consequent engorgement, ensues, and the appearances of a chill, as described in the foregoing disease, necessarily follow. In this case, however, no lesion takes place in the lungs. Possibly the tone of the pulmonary artery may be stronger than in the former instance, but most probably the debility which has been previously induced, is such, that the utmost effort of the system, is not sufficient to produce either a congestion or rupture of the vessels of the lungs. And in this particular alone, consists the difference between a paroxysm of an intermittent, and the first effort of inflammatory fever.

It is true, a further difference may be marked, with reference to the remote causes of each. Cold alone produces the predisposition in the one case, leaving the system armed with the whole stock of healthful power. In the other, a debilitating agent, to a certain degree disarms the system of its powers, subjecting it to the morbid influence of cold, whilst the energies of life are too much exhausted to struggle with sufficient violence to produce lesion.*

The periodical movements of an intermittent, still remain to be considered. If an adequate accumulation of power is generated by the suspension produced by the cold of one night, to charge the system sufficiently for the production of a febrile storm each succeeding day, the fever will put on a quotidian form. If it require two nights for collecting the necessary stock of power, the form will be that of a tertian. And if three nights be necessary for the production of a similar state of things, we shall have a quartan. If more than three be necessary for raising the stock of power so high as to produce fever, it would seem that the accumulation of each night, is expended each succeeding day.

Any other diversity, as to the severity of the attack; the duration of the chilly or hot stage; the difficulty which may attend the cure, &c. must depend on the power of the primary, remote cause, and on the various temperaments of different patients. Thus it appears, that upon principles of unity, there is no difficulty in explaining the phenomena of the chilly state of fever, under whatsoever ordinary form it may appear. And the same explanation will

*The explanation here given of fever, as it graduates from pleurisy to intermittent, is continually exemplified in the marshy country near the sea-coast. One or the other of these two forms is generally prevalent, following the seasons according to the order here proposed.

apply as well to autumnal as to vernal intermittents.*

The same principles will apply in an explanation of every grade of remittent fever. There must be a difference, however, in the power of the remote cause by which each grade is produced. For if the degree of debility which is previously induced, were no greater in the one than the other, similar causes will produce similar effects. But as the heat of summer progresses, the volume of poisonous gas is extended, and its violence increased. The system in the mean time, exerts itself in its powers of adaptation, and from time to time spins out its strength, struggling to be able to meet the increasing mandates of the stimuli which act upon it, just as a man can compel his animal system to adjust itself to the pressure of a daily increased dram of ardent spirits, till, at length, through the co-operation of some additional stimulant, casually or artificially applied, or through the exhaustion consequent upon some extraordinary exercise or labor, or, finally, through some unusual

* It is possible, indeed it is probable, that after frequent occurrences of the paroxysm, from the cause as above stated, the ordinary laws of association may claim a place in maintaining those oscillatory movements of the system, which are sometimes extended through many months. It is also possible, that a torpor of some of the viscera, according to doctor Darwin's opinion, may sometimes be the cause of an accumulation of energy, and produce, or hold a share in producing and maintaining, a similar mode of fever. The pressure made upon the large blood vessels, by the weight or distension of an extensive abscess, may sometimes occasion similar appearances. So, also, in inflammatory affections of the liver, mesentery, or uterus, there is such an introversion of excitement, and such an extensive retardation of action, as always produce chilly sensations. But none of these instances furnish any sufficient objection to the mode of explanation which is here given.

change in the temperature of the weather, a collapse takes possession of the outposts of the system. The excitement retires to limits narrow in proportion to the existing debility, and the excitability of the central vessels which remain in action, is elevated sufficiently for the production of fever. But, because of the exhausted state of the sensorium, the effort is seldom strong enough to produce a perfect ague in the commencement; and not many distinct appearances of chill are observed in the succeeding exacerbations.

It would seem that the stimulant or hurtful agent, which produces the exhaustion of vital power, continues to act upon the system day and night, and that, at the close of the first and every succeeding struggle or paroxysm, the predisposing circumstances of the case are becoming more and more aggravated, and that through the daily increase of exhaustion, the system is less able to impel the blood into the pulmonary vessels, with the force which is necessary to produce the chilly state of fever. I have stated that the hurtful, remote cause, is to be considered as continuing its agency upon the system, day and night. This continual pressure, together with the ordinary stimulants which prevail more in the day than in the night, causes an increase of excitement about mid-day. As the day declines, the subduction of stimuli, and the progressive exhaustion of the energies of life, cause the action to abate. The sedative power of the temperature of the night, which is always comparatively cold, again brings about the same train of things, which, at first, constitutes the predisposition, and again arms the system for a paroxysm of fever. In consequence of the accumulation for the night, the pleasant stimuli of the morning, produce comfortable sensations to the patient, as if he were approximating towards a balance of excitement, and for a very short space there seems to be an obvious.

amendment. But as the day advances, the remote, hurtful agent, together with the ordinary stimuli of the day, again unite their powers, over-rule the excitement, and drive the sinking system through the same routine of motions, which constitutes an exacerbation of fever.*

The difference, therefore, which obtains in an ordinary intermittent and remittent form of fever, appears to be this:—in an intermittent, the system taken in the aggregate, is partially exhausted by the remote cause, yet, through the great disparity of temperature between the day and night, in regions where intermittents abound, a state of predisposition is formed, whilst there still remains sufficient power to produce an effort, not far inferior in force to that which constitutes simple inflammatory fever. In a remittent, the system taken in the aggregate, is much more exhausted, whilst through the lesser disparity of temperature between the day and the night, the system is able to maintain an approximation toward a balance of excitement, till the collapse takes a more extensive possession of the vessels on the surface. And when the moving vessels are sufficiently charged for raising a fever, the system is too much exhausted to assume movements, as nearly imitating those which constitute a simple inflammatory fever.

It may probably be asked here, if the outposts of the system, in a remittent form of fever, are more completely in possession of the enemy, how happens it, that the skin is often as hot or hotter than it is in an intermittent? I answer, that in every case where there is much prostration, the skin is so far depriv-

* Exacerbation—paroxysm, are two technical terms; each of which signifies a fit of fever.

ed of excitement, that the moisture necessary for conducting off the heat which is eliminated from the system, is not supplied; and, as a bottle filled with boiling water, and kept properly dry, will retain its heat much longer than another which is continually moistened, though both are within the same temperature, so a fever with a dry skin, is always marked with a preternatural heat. But it shall be found that although the surface is hot, the vessels of the skin and cellular membrane are collapsed, and therefore that the heat is not the result of an increase of action on the surface. Moreover, it is a fact, that by an application of cold water, by affusion, or by the means of a wet sponge, the accumulated heat may be speedily evaporated, and that it will require a length of time proportioned to the degree of existing debility, before a similar accumulation will again be collected; consequently it cannot be the result of a preternatural heat at all. It is a mere retention of such portion of this principle as is necessarily eliminated so long as life can be preserved, although the quantity present in the system, taken in the aggregate, is less than natural. I am at liberty to assert, therefore, that with the exception of certain cases of simple inflammatory fever,* and those which particularly concern the skin, as scarlet fever, measles, smallpox, &c the more feeble the excitement in fever, until death commences, the hotter the skin will appear to be at certain intervals.

* In cases attended with great depression of excitement, whether through an engorgement of the lungs, or brain, or mesentery, a state of things which occurs in the commencement of fever only, the pulse is sometimes almost or altogether imperceptible, whilst the skin is quite cold and clammy. This appearance of course, for the time being, furnishes an instance of exception. Also, when the system has been worn down through an excessive action of the vessels of the skin, as in measles, &c. we would naturally expect the heat on the surface to be less than when the eruptive fever is at its height. With these exceptions, the principles above laid down, must be admitted.

Fever, which in the commencement, may be considered strictly remittent, if improperly managed or neglected, frequently degenerates into a continued form.* This change is wholly the result of increasing prostration. And if the remote cause be armed with sufficient power, and continue to act upon the system long enough to produce a certain degree of exhaustion, the mode of fever which takes place under such circumstances, will be continued from the beginning. In consequence of the great debility so gradually brought about in this case, a more extensive collapse of the extreme vessels takes place. The whole stock of moving power is contracted into narrower limits. The action of the vessels within those limits, is therefore perpetually more or less above par. But the great mass of collapsed vessels maintain a perpetual and effectual resistance against the feeble efforts of the system to recover its balance. And, in fact, this grade of fever might more properly be considered a state of great exhaustion of vital energy, than that of febrile action at all.

If the sensorium can maintain its functions, until the hurtful agent pass away, or, till by rest and management, the necessary adaptations can be accomplished, the patient recovers, but if the hurtful power of the remote cause continue its pressure, until the sensorium is sufficiently exhausted, it necessarily terminates in death.

* Is it not strange that physicians should for ages have witnessed the transition of disease out of one form into another, and yet doubt of its unity? And where can a physician be found who does not know that such transition can be produced by a single instance of ill-timed bloodletting, or, by the operation of one cathartic dose, if too severe for the condition of the patient? How then can he fail to see that the difference in the forms of fever, is the result of the difference in degree of strength, in different seasons or different persons?

If the remote cause be more gradually applied, so as to give longer space, and of course more fully to exhaust the struggling powers of the system, a form of fever will ensue very similar to the foregoing, but with a more entire abandonment of the surface, assuming the shape and appearances which are commonly called typhus, which will be more or less gravid or mild, according to the power of the remote cause.—And if much improper evacuation be effected, there will speedily follow a subsultus tendinum, or a nervous twitching of the muscles.*

Such is the gradation and appearances of disease, as it occurs under the influence of ordinary remote causes, throughout the course of the seasons. Some other modifications will be considered, each in its proper place.



I have chosen to commence my explanations of fever, by a consideration of its appearances in the form of an ordinary pleurisy, because this is unquestionably the simplest form of disease; and because, in my apprehension, it affords a key for an explanation of the chilly state of fever, in whatever season, or by whatever remote cause it may be produced; and, if I mistake not, by this method an easy and natural explanation of disease, in any of its forms, is furnished. But this will more fully appear when I consider the method proper to be pursued for effecting a cure.

Before I enter upon this part of my work, that I may be distinctly understood, it is necessary to give

* This twitching of the muscles, will as certainly take place toward the close of a case of pleurisy, rendered fatal by ill-timed and excessive blood-letting, as in a case of typhus fever regularly ushered in and protracted in the ordinary way. Is not this also an incontestable fact, proving the unity of diseases?

a brief exhibition of my view of the *modus operandi*, or the manner of operation of some of those medical agents which I have found to be most useful, and lay down some instructions, by which to predicate an appropriate intention in any given case.

To prescribe judiciously, it is necessary, first, to fix upon some definite object which ought to be accomplished, and then select such an article or preparation of medicine, as is known most certainly and safely to produce the object proposed.

For instance, it might be proper to know whether any case under consideration should be referred to the standard of predisposition with accumulated power, or the contrary. Then if the case occur in winter, or in a healthful season and region, if the patient have always enjoyed good health and vigor, and if he were suddenly affected with chill and languor, with dull heavy pain in the back, and limbs, &c. there would be very little hazard in venturing upon an opinion, that such a case should be considered an instance of "predisposition with accumulated power."

To judge still more accurately of the probable quantity of accumulation present, inquiry should be made respecting the temperature of the weather; the duration and circumstances of the exposure; the quantity of clothing; and the various artificial means which may have been used to counteract the influence of cold. The patient's skin should be carefully inspected, in order to judge of the probable extent of the collapse which may have taken place.* And spe-

* In making the investigation here proposed, I never fail to pay as much regard to the state of the veins, as they present themselves to the eye, as I do to the state of the artery, for determining its force, &c. In cases of obstinate collapse, the veins cannot be filled by tying on a ligature in the way it is done in or-

cial attention should be paid to the state of the pulse, to judge of the quantity of excitement present in the system, and of the probable degree of power, which is likely to be exerted for the restoration of a balance.

In a case of this description, it is obvious, that the intention ought to be in some way, as expeditiously as possible, to restore a return of excitement to the surface, so as effectually to drive the enemy from his possessions, and then extinguish any remaining accumulation of vital power, which might be found afterwards to prevail.



If the case occur in a sickly season, or in any place where some alarming fever for the time being prevails; if the patient have gradually declined, so as to have been lingering under a sense of weakness, for a considerable time before the symptoms became serious, and especially if there have been a daily disposition to be near the fire, or within the influence of the rays of the sun, it may be safely concluded that this is a case of predisposition with exhausted power. In order to judge of the degree of debility present, and of the extent of the collapse which may have taken place, all the foregoing inquiries ought to be made, and an accurate attention should be paid to the state of the pulse, that any change which may be expected, may be properly understood.

In a case of this description, it must be obvious, that the first intention should be to regain possession of the outposts of the system, and in some way to hold them till the necessary strength can be recovered, and healthful excitement established.

dinary blood letting. An accurate attention to the skin is earnestly recommended. A nice observer will discover a diversity of texture and appearance incident to this membrane, infinitely surpassing ordinary apprehension on the subject.

If the case under consideration should have passed beyond the stage of predisposition, and the fever have actually formed, some additional circumstances come into view.

In every case of fever with accumulated power, we necessarily have an instance in which the quantity of excitement rises above par, and the excess above that which is ordinary will be in proportion to the existing accumulation of excitability. If such excess be great, there may be danger of a pernicious lesion, or a destructive stretching or rending of some of the vessels important to life. And the degree of this danger may be known, by the tension of the artery, the difficulty of respiration, and the severity of the pain. Such tremendous instances, in which the violence of excitement overwhelms the functions of life, in which the brain or lungs are so suppressed, that the patient becomes speedily insensible of his distress, are exceptions which will require the immediate aid of a skilful practitioner.

In a case like this, it is obvious, that the first intention of the physician should be, to reduce the power of excitement with such expedition and decision, as may be necessary to prevent threatened lesion, or if lesion have already taken place, to prevent its further extension. The outposts of the system in the mean time, should be carefully recovered and maintained, and any degree of accumulated vital power, should be speedily extinguished.

Again, if fever with exhausted energy, have actually taken place, it will be found, that by the agency of the remote cause, together with the exhaustion attendant upon feverish excitement, the system is every moment more and more prostrated. Of course, it must follow, that the first intention, in such a case,

should be to correct the feverish excitement. But this is to be done in a way having a proper reference to the nature of the predisposition. By the supposition of the case, the excitement of the vessels actually in motion, is more or less excessive, because of its confinement to limits too narrow for the demands of existing vital power; whilst, at the same time, the quantity of power, taken in the aggregate, is less than natural. The intention, therefore, should be, first of all, carefully to correct the collapse of the surface, so as to afford the degree of expansion to excitement necessary for the complete expenditure of existing vital power, for the time being. And any subsequent assault from the enemy must be prevented, till the necessary time shall be gained, to permit the system to adjust its functions to the circumstances of the season or climate, or till it shall acquire the necessary adaptation to bear the pressure of the remote cause.

If a man, in habits of drinking ardent spirits, or one with a fat personage, or a healthy man, immediately after great fatigue, should be so exposed to cold, as to bring on a state of predisposition, though in the healthful season, his case will assume a mixed shape, in some degree imitating the form of fever as it occurs in the sickly season. The enemy will be found to have taken deep possession of the outposts of the system, and reaction will be considerably languid. The fever, therefore, will assume the shape commonly called a bilious pleurisy, or some other form of bilious inflammatory fever. This fact affords another invincible argument in favor of the doctrine of *unity of disease*.

Here the intention should be, first, to correct the collapse. This done, in most cases there will still

remain some excess of excitement; this excess should be put down for the time being, and the necessary arrangements should be made to prevent any further attack from the enemy. Afterwards, still maintaining the surface, the excitement must be regulated from time to time, according to circumstances.

The bilious appearances in such a case, are the result of a powerful introversion of excitement, which commonly attends, producing more or less engorgement of the vessels of the liver, or mesentery. In such a case, the practice must necessarily be similar to that which is required in common bilious fever.—Not only ordinary cathartics will be requisite, but more or less repetition of such as are considerably drastic, will be found indispensable.

A similar case may occur in the sickly season, when a man, armed with considerable vital power, comes under the influence of a sickly atmosphere, and by some excessive effort in labor, running, or riding on horseback, or by drinking ardent spirits, suddenly induces a sufficient degree of prostration to produce a fever. The fatigue, together with the power of the sickly agent, produces a sudden exhaustion of vital power. But as the system has not long been laboring in her powers for adaptation, to adjust her movements to the sickly region, the sensorium is sufficiently active to produce an effort of considerable power. Hence, when the reaction or struggle for a restoration of a balance commences, appearances very similar to those which occur in a case of bilious pleurisy, frequently happen. In such a case, the intention should be similar, without regard to the season of the year. Whenever the excitement has abandoned the surface, it should be

made to return. Any excess of excitement should be put down. Any accumulation of excitability or vital power should be extinguished.*

It sometimes happens, that in consequence of some peculiarity in the system, whether by hereditary or accidental causes, when a predisposition to disease is formed, a destructive determination to some one organ, or to some particular part of the system, is the result. In such a case, the intention, as it respects the general treatment, should always be the same as if no such determination had occurred. Some additional and subsequent intention, however, may be found necessary in order to perfect a cure. In a case of pleurisy, for instance: in addition to the ordinary remedies for reducing the violence of excitement, it is often necessary to draw a large blister over the region of the pain. The intention is to raise an external irritation on the surface, sufficient to counteract the irritation, which is kept up by the internal injury sustained upon the vessels of the lungs.

And sometimes it happens, that whilst there is a disposition in the system to determine its powers to some one weak point—there is a proportionate disposition to abandon others. In every such case the intention should be to equalize excitement throughout all the vessels of the system.

* Who that carefully considers the facts upon which this clause is predicated, can fail to perceive the strongest evidence in favor of the unity of disease? I should be ready to suspect a want of the necessary accuracy of observation in any man, who has not noticed the great similarity of appearances which occurs in these cases, though in seasons and under circumstances so dissimilar.

In every case of disease, so long as there is sufficient energy to sustain the shock necessarily attendant upon it, one leading intention should be, to remove all feculent matter, as often as it accumulates sufficiently to irritate the system. The skin and mouth should therefore be carefully and frequently washed; and the bowels should be aided with appropriate cathartics.

After disease has progressed so far that the system is much enfeebled in its powers and movements, it frequently becomes necessary to afford the aid of some artificial stimulant. In such case, the intention should always be, to institute an artificial balance of excitement, upon a grade commensurate to the several peculiarities of the case; endeavouring to maintain the artificial arrangement in a state as nearly analagous to that of health, as circumstances will admit, till, by suitable nourishment and sufficient time, real health may be recovered. Each of these various intentions should be pursued as often as the existing state of things makes it necessary and proper, without regard to the name or duration of the disease.

Remedies, or medical agents, are useful and valuable, therefore, just so far only as they can be depended upon with certainty for the accomplishment of any proper intention.

I shall consider those proposed, in connexion with such practical observations as may enable the reader definitively to judge wherefore, when, and how far, each of them should be employed.

I shall not regularly pursue the classification commonly observed by writers on *materia medica*, but introduce each article in that form and order in which it is present before my own mind.

1. **BLOOD-LETTING** is a remedy by which excitement is completely placed within the control of art.* I have considered the blood as one of the natural stimuli upon which life depends. By loss of blood, therefore, excitement is reduced, in proportion to the quantity lost, except only in certain cases of depression, in which through an engorgement of some important branch of the blood-vessels, excitement is confined. In such a case, loss of blood to a certain extent, may be followed by an immediate increase of excitement. But when there is no such depression, it must universally follow, that by loss of blood, excitement for the time being, will be diminished. Therefore, when excitement runs so high, as to produce lesion, or threaten to produce it, and especially when, through the violence of the assault, time is not allowed for the trial of other alternatives, blood-letting should be employed. And upon the same intention it may be repeated as often as the case may require.

When there is good reason to believe that the energies of the system are sufficiently active to raise a speedy and effectual reaction, then as a copious blood-letting produces great momentary suspension of excitement—by this suspension, excitability is accumulated, and the system is charged for an effort by which it finds an immediate balance, or an approximation towards a balance of excitement. This is

* It is a remarkable fact, that blood drawn from a patient immediately after the operation of my hot bath, is universally florid—in appearance just as if it had flowed from an artery. This is given as a hint for physiologists.

often effectually done in the time of the predisposition, or early stages of fever.*

Also, when there is a morbid generation of vital power, or when there is an obstinate inflammatory determination to some particular organ, or part of the system, it may be frequently repeated for the purpose of producing and maintaining a state of debility, till, by time and management, the morbid action may be made to subside, and a complete balance can be established.

One of three intentions, therefore, ought to direct the use of the lancet. To reduce excitement in order to guard against threatened lesion; indirectly to produce a new action through the accumulation of vital power; or to induce a certain degree of direct debility, in order to render the system more manageable, that is, more susceptible of any counteracting impression which may be intended.

I must not fail to add, that although a copious blood-letting taken from a large orifice, has the most effectual tendency for the moment to induce an accumulation, yet it must follow, that by loss of blood, in the end, there will be a commensurate loss of vital power.

Whatever excitability or vital power is, it is in some way generated in the system. And if the system be robbed of its most essential nourishment, it must fail to generate this power in natural quantity.

* The blood flows on the surface after such an instance of blood-letting, by the same laws which produce that effect after using the cold bath in an appropriate way. And here let me remark, that the success which frequently follows this decisive method of employing blood letting, when properly timed, has contributed very much toward the great popularity of this remedy. It should be remembered, however, that when the same thing is attempted upon a case which is not in an appropriate condition, the most alarming and destructive consequences frequently take place: hence this practice in unskilful hands, is, of all others, the most dangerous.

And, therefore, although debility induced by blood letting, comparatively speaking, is always of a direct kind, yet it would be absurd to suppose that a continued accumulation of vital power would follow great and repeated losses of blood. When great losses have been sustained, such management will be requisite as has a tendency to replenish the loss; at the same time that artificial stimulants are used, to supply the place of a natural one, so important as the blood. For although the system is truly said to be in a state of accumulated power, and therefore to need the balancing influence of an appropriate stimulant, yet opiates, ardent spirits, and the like, must not be relied on without the addition of suitable nourishment, otherwise the system will sink into a state of indirect debility, and that of the most dangerous kind. Under such circumstances, therefore, whether brought about by accident, or by sudden or long continued hemorrhage, wine, soup, sago, and the like, ought always to be used, at proper intervals, between the repetitions of the necessary opiate doses.

2. **PUKING** is a remedy which reduces morbid excitement, and has a very strong tendency in many cases, by the storm which it raises, to balance the motions of the system. It may be used to evacuate the stomach, when, at the same time, there is good reason to suppose there is a morbid accumulation of vital power. In fact, when there is much exhaustion of vital power, emetics fail to produce their intended effect. On the contrary, they increase the debility of the intestines, and are followed by colliquative diarrhœa.

In most cases where blood-letting is proper, an emetic* might immediately follow the loss of blood

* Emetic medicines are such as excite vomiting. Ipecacuana, perhaps, is the best article of this class. To be given in doses from 5 to 30 grains. Mr. Finley, representative in the lower house of congress informed me, that he had very often treated

with advantage. By the bleeding, there it brought about a diminution of excitement, of course an accumulation of vital power. The circumstances which make blood-letting necessary, commonly forbid the use of ordinary stimulants, which might otherwise be employed for preventing any morbid accumulation. By the painful nausea and convulsive motion of the stomach and abdominal muscles, the desired expenditure may be frequently and safely produced.

One of three intentions, therefore, ought, in every case, to preside over the administration of an emetic. Either to shock the system, with design to overwhelm any morbid action present; to evacuate the stomach; or to extinguish any morbid degree of vital power, from time to time generated in the system.

3. CATHARTIC remedies* should be used with an intention to evacuate the intestines. And as there are in use various articles, of different powers, some one should be chosen, or such a combination of two or more, whose known powers may most accurately meet the intention. In robust cases, with violent morbid excitement, some drastic dose should be preferred, as jalap and calomel. If any degree of engorgement is justly suspected to have taken place in the liver, or mesentery, a dose or two of articles still more powerful may be profitably used; as aloes, gamboge, and calomel, combined. Afterwards, in ordinary cases, castor-oil or rheubarb, with salts, alternated with doses of calomel, may answer the intended purpose. If the case be chronic, alkaline† medicines may be combined or interspersed with other cathartic medicines. If the bowels are inflamed, or the patient much exhausted, olive oil, cold

pleurisies with great success in this way; and that he had never known an emetic, given immediately after blood-letting, to fail in producing an excellent effect.

* Cathartics are purging articles.

† Alkaline medicines, such as salt of worm wood, salt of tartar, salt of amber, soda, &c.

drawn castor oil, manna, cream of tartar, Rochelle salts, tamarinds, or magnesia, &c. ought to be preferred. In cases of infants, rheubarb, with magnesia, warmed with a little essential oil of anise, or when this might be too stimulant, a little olive oil, or manna, or an infusion of rose leaves.

In the progress of fever, it is necessary to pay strict attention to the state of the bowels. Irritating matter, retained in the alimentary canal, might keep up a feverish action when every other arrangement has been made favorable for a cure.

4. DIAPHORETICS, or sweating medicines, ought to be used when the intention is to restore excitement to the surface, and when the system at the same time can safely be placed under the influence of an artificial stimulant. Perspiration can be induced when the system is in two different states. In a state of direct debility through loss of blood, or through the sedative agency of cold; if not too long continued, certain gently stimulant means, especially when aided by heat, will excite the system, producing an increase of arterial action, which will ultimately extend its influence to the extremities of the capillary vessels.—The arterial action thus artificially raised, will necessarily for a time transcend the action of the veins. During the continuance of this want of balance, extraordinary moisture will be exuded—that is, perspiration will be produced.

Again, if the energies of the system are entire, and the organization of its vital parts is sound, by the agency of similar means, with the aid of some additional heat, a profuse sweating may be effected upon the principles laid down in the foregoing remarks upon the influence of the heat of a summer's day upon the surface. By the power of the preter-

natural stimulant used for the purpose, indirect debility is induced. But as the heart and arteries are held under the influence of this artificial agent, the failure of power will first be perceived in the absorbent system. A sweat induced in this way, sometimes produces morbid effects; and when there is any considerable degree of fever, it is unsafe. If congestions have been previously formed, they are rendered more extensive and obstinate; and in many instances incurable. It is frequently thought the patient is injured by subsequent cold. But, in truth, the intended remedy, in almost every instance, is properly chargeable with the mischief. The exhaustion of vital power, through the stimulant agency of the means employed, and the loss of circulating fluid, through the profuse perspiration which is induced, may co-operate, so as to prostrate the system as low as an excessive loss of blood would have done, leaving the system in a state of predisposition with exhausted power. Diaphoretic medicines, therefore, ought to be used with circumspection, when the intention is to raise excitement on the one hand, and deplete the fluids of the system on the other, so as to institute and establish a new action. If this intention be judiciously managed in the forming stage of disease, it is frequently effectual in correcting the morbid action at once. Very great accuracy of judgment, however, is necessary to guard against mistake. And, therefore, heavy sweats ought never to be given in this way, except by the hand of experience.

5. **ANTIMONIAL** preparations* have commonly been considered as important diaphoretic agents.

* Antimonial wine, tartar emetic, are the two most commonly in use.

For many years I have not used them with any such intention. In my opinion they are valuable, chiefly on account of their efficacy in extinguishing the vital power of the system. Hence it is, that they are always most useful in those cases of fever which are marked with sufficient energy. For the same reason they are always pernicious when there is great prostration; and, instead of inducing any thing like a diaphoresis, they are followed by colliquative diarrhœa. Whenever they produce diaphoretic effects, it is done in the following manner:—The sudden extinction of vital power on the stomach produces general debility; the action of the absorbents on the surface first begin to languish; the arterial action therefore overruns that of the veins, producing diaphoresis.

6. MERCURY is become a very fashionable medicine. In the form of calomel, it is a valuable cathartic, when the intention is to evacuate the bowels and at the same time produce an increased discharge of bile—an effect which, in ordinary cases, so uniformly attends the use of this article, that it might almost claim the dignity of a specific. But it so imperiously extinguishes vital power, that in every case of great prostration it is utterly inadmissible. In that grade of fever in which the energies of life are exhausted down to the state of typhus, a single dose of this agent has in many instances, produced an unconquerable colliquative diarrhœa.

When there is a disposition in the system to direct a morbid determination upon the liver or mesentery, well regulated repetitions of calomel will be found highly important. By procuring an extinction of energy on those parts, for a sufficient length of time, aiding the intention by blood-letting, and other ca-

thartic doses, when necessary, such morbid determination is most effectually corrected. And this will, the more certainly be done when the repetitions are made once every sixth hour, which is about the period during which calomel maintains its stimulant power. All cathartic and emetic agents extinguish excitability. Those most drastic and violent, probably possess this extinguishing power in the greatest degree.

In cases of bilious pleurisy, and ordinary bilious fever, in which there is need of disarming the system of that portion of power which is exerted in maintaining a morbid determination upon the liver and other viscera, large doses of calomel, daily repeated, have often been found highly important, if not indispensable. In these cases, also, if an appropriate dose were repeated once every sixth hour, the intention would be more speedily and effectually accomplished. The same mode of administering this remedy would also be found most effectual in that form of located disease which is commonly called bilious colic.—And here it should be remembered, that aged persons, and such as are prematurely worn out by intemperance, as well as all those who are prostrated by disease, have too little vital energy remaining to bear the exhausting powers of large doses of calomel. For want of this precaution life might be lost by a single dose.

7. A SALIVATION produced by the use of mercury, is deemed an important remedy in the cure of disease in some of its forms, especially those which affect the glands of the system. The mode of its operation in this respect, may therefore deserve remark.—When the system is permanently placed under the power of this agent, its first effects upon

the blood-vessels are obviously inflammatory, inso-much, that in many cases the intention would be defeated if the inflammatory appearances were not put down by blood-letting. It would seem that it induces a peculiar disease upon the blood-vessels, which probably acts with equal power upon every branch of the arterial system, beginning at the centre and progressing towards the surface, compelling the action to assume an equable determination upon every part of the system. From this mode of operation, results that astonishing power which mercury sometimes displays in breaking a morbid determination of excitement. It would seem, also, that the irritation which is first excited in the artery, continues to progress, till, by the ordinary communication, it passes over to the vein and produces an increased action in the secretory vessels. And this effect, in order of time, takes place after the arterial action has in some degree subsided, so that the arterial action is diminished, at the same time that the action of the absorbents is increased. And in this state of things, the deobstruent* effects of mercury, probably are accomplished. The salivary glands, as well as the whole mass of glandular vessels, are equally roused into increased action; but as the secretion which is accomplished by those glands, is destined for the lubrication of the mouth, this obvious circumstance, I think has induced a belief that mercury is armed with a specific power of producing salivation.

If this view of the subject be correct, then it will follow, that some appearance of salivation is necessary to prove that the glandular system is sufficiently roused to meet the intention; and that the

* Deobstruent. Having the power to remove obstruction, or to an old opinion, having the power to resolve visc.

degree of salivation induced, may always serve as an indication of the degree of extraordinary secretion which may be going on in the whole train of glandular action.

When disease is cured by the agency of mercury, it must be accomplished by some one or all of the following effects.

By its tendency to exhaust vital power, large doses given in the commencement of disease, sometimes immediately extinguish any morbid accumulation, and hasten the restoration of the balance of excitement. I have seen this effect completely accomplished, without any extraordinary catharsis.*

By the same mode of operation, when given in appropriate doses and repetitions, it meets and extinguishes any local accumulation of vital power of the viscera, and corrects the error, by an indirect effect, which, in some degree, operates like topical blood-letting.

Or, by its imperious sway in exciting equable action, first exerting its powers upon the artery, and presently also upon the vein, it gradually brings down the whole mass of excitement to a point, from which a healthful action may commence, and progress in safe convalescence towards a complete recovery. And one of the best advantages attendant on its use in this:—that in the order of its operation the action of the absorbents is greatest after the stock of energy present in the system, has been considerably exhausted.

It is possible, however, that this order is inverted, when the application is made externally by way of friction, and, therefore, in most feeble cases, the application by friction should be preferred.

8. COLD is frequently employed as a remedy, and with very good effect. The great certainty with

* Catharsis, purging.

which it corrects the pain attendant upon external inflammation, is known to every one. Upon the great sedative powers of this agent, is predicated one of the leading principles of this essay.

The application of cold will never fail, for the time being, to diminish excitement, and that in proportion to the extent and continuance of the application.—Much has been said of late of its great utility in the cure of fever, in hot climates; and when judiciously employed there can be no doubt of its power.

In every form of fever, with dry hot skin, it is useful, at proper intervals, to cool and moisten the surface with a sponge or cloth, wetted with water or with spirit and water, or with spirit alone. By this method artificial moisture is furnished, and the heat retained upon the surface is quickly evaporated.

In certain cases of malignant fever, where the remote agent is so awfully stimulant as to threaten a fatal extinction of vital power, it may often, perhaps always be useful in the commencement, not only to subduct from the natural stimuli of the system, but also to secure frequent suspension of excitement on the surface, by copious affusions of cold water. Regard must be had, however, to the subsequent reaction of the system, for if the surface long remain in a collapsed state, some fatal determination upon the brain, or lungs, or mesentery, might be the consequence.

When the system feels dull and heavy, with some sense of giddiness of the head, and especially if this state of things comes on without any known cause, such as intemperance, loss of sleep, and the like, it may be taken for granted, that there is present some stimulant agent of considerable power. Under such circumstances, the bowels should first be satisfactorily evacuated: then, if the dullness and giddiness remain, the cold bath may be tried. If the application be appropriate, in a few minutes after wiping

and putting on ordinary clothing, a glow of heat will be felt on the surface, and the veins on the extremities will be filled with blood. But if a collapse of the surface should follow the experiment, and a chiliness long remain, there is already so much debility prevalent, that the necessary reaction cannot take place. And in every such instance, recourse should be had to the fire, to correct the ill effects of the intended remedy. When this experiment fails, it would always be prudent to avoid every kind of labor or exercise; in fact, to keep in bed until the sickly agent so pass away, or the system so avail herself of her usual adaptations as to recover ordinary strength.

Having advanced thus much upon some of the most powerful agents commonly in use for the correction of morbid excitement, I now proceed to notice some of the remedies which are used to support the system when debility prevails.

Debility through loss of blood, is best corrected by giving immediately an appropriate dose of opium, and repeating it once for every sixth hour.

9. OPIUM is always stimulant, and is durable in its effects. Hence the danger which almost inevitably attends its use in cases where too much excitement prevails. And hence the benefit which has sometimes been gained by it, when the system, by art or otherwise, has been placed in a favorable state.

In cases of fever of a low type, small doses of opium are sometimes indispensable. Here the intention is to sustain the feeble powers of the system, whilst she is laboring to bring about the necessary adaptations; or to hold up her sinking head till the sickly agent pass away. But in this state of things

the greatest circumspection is necessary to guard against an unappropriate production of excitement. All avoidable filth must be removed, the intestines must be continually kept in proper condition, and the most suitable nourishment regularly supplied, such as the best wine, tapioca, sago, whey, soup, &c.

Other stimulant articles, less durable and powerful in their effects, are sometimes also found useful and necessary, such as essence of peppermint, compound spirit of lavender, gum camphire, Virginian snakeroot, Russian castor, vitriolic ether, volatile salt, &c. each of which is to be preferred according to the particular state of the case. If the disease have been produced under circumstances which induce great exhaustion of vital power, opium is generally inadmissible, whilst some one or more of those articles which are less durable and more diffusive in their effects, are absolutely necessary. On the contrary, if debility be induced under circumstances which mark the presence of accumulated power, opium is one of the best agents yet known in the medical world.

Let it be remembered, however, that in every instance where opium is necessary, it would be most safe to prepare the system by first administering a hot bath. By this measure a centrifugal determination is secured, and the patient very safely comes under the stimulant power of the opium.

10. **BLISTERS**, rubifacients* and sinapisms,† have also been found highly important in maintaining in a

* *Rubifacients*. Such as tincture of cantharides, spirits of turpentine, tincture of red-pepper—any application which will produce heat and redness on the surface.

† *Sinapisms*. Poultrices, made heating by the addition of mustard.

centrifugal determination of excitement, as often as very great debility prevails; as also in abstracting from any point of irritation by exciting an equal or greater degree of irritation upon the surface. It has been hinted in the preceding part of this work, that pain has influence in extinguishing vital power. This is true, but when a degree of pain is excited by an irritating cause, which is not sufficient to overwhelm the rising energies of the system, it often serves no other purpose than to invite a long continued and distressing determination of vital power upon the part. Hence it is, that when blisters are much needed in the decline of fever, a small application will do very little towards balancing the system, whilst it will produce the most troublesome effects. The blistered part often becomes inflamed, and is very difficultly healed. Whereas a large blister, say eight by ten, or ten by twelve inches, very commonly extinguishes any superabundant stock of vital power, secures a determination of excitement to the surface, and terminates the disease. Some remarks explanatory of that association of appearances which constitute what physicians call the blistering point, will be made when I come to state the method of curing a case of inflammatory fever.

11. CINCONA or Peruvian bark, vitriolic acid, and all the train of tonic agents,* act as stimuli on the stomach, and rouse the arterial system at the same time that they effect an expenditure of vital power.

12. STRAMONIUM† and cicuta,‡ of the vegetable

* Tonic agents, such as give strength or tone to the system.

† Stramonium. Jamestown weed.

‡ Cicuta. Hemlock.

kingdom, and arsenic, lead, and cuprum ammoniacum,* of the mineral, appear to extinguish vital power, without effecting any very evident increase of vital motion.

13. IRON, in all its various shapes, produces an increase of excitement, and if given when inflammation prevails, or when disease has located itself, it is universally pernicious.

14. HEAT is a very powerful medical agent, and admits of a more universal application than any other yet discovered. I have said that heat is the necessary and universal ally of life. This view of the subject, meets the approbation of every man of common sense. In explaining the appearances attending pleurisy, I have attempted to prove that there must necessarily be a deficiency of heat in every instance where there is a deficiency of excitement. "Heat," says doctor Rush, "is an uniform and active stimulus in promoting life. It is derived in certain seasons and countries, in part from the sun, but its principal source is from the lungs, in which it appears to be generated by the decomposition of pure air, and from whence it is conveyed by means of the circulation to every part of the body." But if the whole system is prostrated, the volume of heat decomposed in the lungs, must be less than natural. In consequence of the feebleness of the excitement, it cannot be properly conveyed to the remote points of the system. It must, therefore, necessarily follow

† Cuprum ammoniacum. A preparation of copper and sal ammoniac.

that an external application of an appropriate portion will afford the most natural aid in this situation. In proof of this, it is always agreeable to the patient.

Having tried the experiment an hundred times over, without meeting with one exception, I assert, that in every case of fever with exhausted energy, and in all cases of direct debility, artificial heat, in an appropriate degree, brings pleasurable sensation to the patient, and may be so managed as to produce cordial effects. In all cases of debility, whether directly or indirectly induced, there is a prevailing inclination to an introversion of excitement. Heat applied to the skin, most effectually counteracts this tendency, and promotes a centrifugal determination.

When the surface is abandoned through want of excitement, the skin collapses, and seems to lose its natural elasticity. Heat artificially applied, corrects this inconvenience. In some instances it may seem at the first to produce a transient effect only; but by careful and well timed repetitions, it will at length become durable. The system artificially replenished with this principle, is presently enabled to generate a more competent supply for itself. But as an excessive portion of wine, or any other cordial, stimulates too much, and induces a morbid degree of indirect debility; so also an excessive application of heat, will produce similar effects. In all such cases, therefore, special regard should be had to the feelings of the patient.

There are some remarkable and important advantages attending the use of this cordial, which no other can possibly claim. In every case, where properly used, it produces a full effect, without imposing any improper stress upon the central vessels. So that in securing the most pleasant diffusion of excitement, it offers no injury to any of the organs of life; ordinary cordials, on the contrary, are dependant upon the struggle which they may excite

in the heart and central vessels, for any and every centrifugal effect which they may produce.

Again, at the same time that heat, by its stimulant power, invites excitement to the surface, it softens and expands the skin, in a way preparatory to receive the returning blood. Ordinary cordials must accomplish the effect, by compelling the feeble system, if indeed it can be done, to assume an action sufficient not only to resume all those branches which it had abandoned because it was not able to maintain them, but also to overcome all the resistance of an almost lifeless collapse of the vessels on the surface, possibly one-fourth part of the system.

It is true, that heretofore insuperable difficulties attended the use of this agent in many cases. But, by the aid of my portable apparatus, every difficulty is now perfectly corrected, and the application of heat can be made with such precision, as fitly to meet the most accurate intention.

I have said, that "in maintaining excitement, vital power is expended"—and, of course, that "extraordinary excitement must produce a preternatural extinction of vital power." In any case of predisposition with accumulated power, therefore, it must be a very important acquisition to have a remedy at hand, by which such expenditure can be speedily and safely accomplished. Heat is this agent. By raising an intense degree of excitement on the surface, every necessary effect can be produced with the utmost safety. This is sufficiently evinced by the foregoing remarks upon the influence of heat in a summer's day.

I have said that pain also has a considerable effect in expending vital power. By exciting as much heat on the surface as can be borne, the pain, together with the concomitant increase of excitement in the vessels of the skin, will certainly and safely correct most instances of predisposition with

accumulated power. The skin is not easily injured in this way, and the strong determination to the surface, which is secured by this method, most effectually guards the system after the process is ended.

Other powerful remedies when once administered, are gone beyond the reach of control, and must have their full effect, whether judiciously or injudiciously administered. But if too much heat has been employed, it is perfectly within our reach to check its influence, by an immediate application of cold. Besides, if it should be found that the blood-vessels are too much excited, blood-letting will safely correct this effect.

Again, in cases of gout, rheumatism, spasm, colic, &c. when there is a morbid determination or location of excitement, heat affords a safe agent by which to correct the determination of power, and maintain a sufficient degree of excitement on the surface, till the system can recover a balance.

After debility has long prevailed in the system, by whatever cause it may have been induced, the collapse of the vessels of the surface becomes so obstinately fixed, that in many cases, no agent heretofore known, has proved sufficiently powerful to effect its correction. In obstinate-bowel complaints, for instance, the skin is universally dry and hard, as if its vessels, which in their natural state must necessarily be tubular, had shrivelled and become impervious. The skin, therefore, loses its elastic feel—becomes habitually and obstinately pale, and through its privation of circulating blood, is disarmed of its power to resist the cold. Heat promises much in such a case.

When things have remained a long time in this condition, another additional mischief is done. As the system, in its astonishing powers for adaptation, can effect the return of the whole stream of arterial

blood, sent into an amputated limb, though robbed of all its ramifications below the point of amputation; as it can enlarge the lesser branches of the artery, when, by the operation for an aneurism, one of its principal trunks is divided, and a part of it removed; so also the arterial blood, destined for the support of the surface, will ultimately find a return by a shorter passage, and the skin will be left never to be recovered, but by some extraordinary agent. Heat must unquestionably afford the best aid for the correction of this untoward condition of things.

It may perhaps be feared, that a frequent use of heat, the only remedy upon which any rational calculation for a correction of this error can be made, may induce debility. My experience warrants the assertion, that the contrary is true. An excessive perspiration induced in this way, as well as in any other, might have this effect, but an appropriate application always invigorates, increasing hilarity.

The bath produces no loss of vital fluid, and therefore any moderate degree of debility is quickly recovered. A pleasant expansion is given to the vessels of the surface, and by heat they are stimulated into increased action. The circulating blood is invited from the centre to the skin. The intestines, therefore, by being partially deprived of excitement, are, for a time, relaxed.—But when the bathing is ended the blood returns to its natural equilibrium, without any subsequent inconvenience.

It should be remembered, however, that when there is an extensive congestion, the vessels involved in the centre of such an almost lifeless mass, must be very partially supplied with excitement. A suspension, or a great diminution of action, therefore, whether produced by blood-letting or by abstraction, might induce a speedy gangrene.

When no better arrangements are provided, the bath may be administered to the patient by supporting the bed clothes with a staff or two of suitable length, or with a temporary frame, made of two half hoops of a flour barrel, and a few laths, three or four feet long; taking care to spread a sheet of paper over the frame, so as to defend the sheets from the severity of the heat at the mouth of the tube. It is necessary to be circumspect during the process, to prevent the paper, or any part of the covering, from falling in, so as to stop the free passage of the heat. Without this precaution, the condensation would become sufficiently great to scorch and injure the bed.

The most convenient and effectual method is, to have a substantial frame, so covered with plank as to supercede the necessity of using the paper, after the following form:

Half a circle of twenty or twenty-four inches diameter, made of oak, or some other strong plank, inch thick—for explanation, say one half of the rim of a wheel. If one inch by one inch and a half, it will be strong enough. This will make the end of the frame, which is to stride across the body of the patient a little above the waist. A half circular plank of fifteen or eighteen inches diameter, will make the foot end of the frame. A thin plank, say three eighths of an inch thick, three feet and a half or four feet long, and nine inches wide, should cover the frame on its uppermost side, and a lath or two of similar length, should secure each of its sides. A hole three and a half inches in diameter, should be made in the middle of the foot-piece for the introduction of the tube. With this as a model, every man may exercise his own ingenuity, and vary his frame so as to suit any particular case.

The patient should be stripped of all clothing, except his linen, which, after the bath goes into

operation, he may draw up to his chin. The frame is to be laid over him in bed, and a sufficient weight of bed-clothes should be used so as to confine the heat properly. A sheet, and three or four blankets, or other covering to that amount, is about the proper quantity for the winter season; a blanket less will serve for the summer. By this arrangement the bath is most conveniently administered. It is applied at the feet of the patient, which is most proper in all ordinary cases, and the gas has a free opportunity to diffuse itself all round the body of the patient. The weight of the bed-clothes being properly sustained by the frame, he can turn himself over at pleasure, which will give him the advantage of warming first one side and then the other, as it may be most agreeable to his feelings. For grown patients, I commonly use the largest cup, and very often the largest and the least both at once. Complaints should always be met at their first appearances, before the energies of the patient are exhausted by disease. In the commencement of sickness, the bath may always be used with decision. It may be very hot, so as to produce a profuse sweating. But it is not necessary to continue the application longer than is sufficient to produce a complete state of perspiration. It should be remembered, however, that in cases of very robust patients, it is commonly safest to take some blood before the bath is applied.

It sometimes happens in recent cases of pain in the breast or bowels, in which the propriety of blood-letting may be doubtful, that the bath produces partial sweating and temporary ease, but presently the perspiration suddenly dries up, and the pain increases. This circumstance will at once determine the necessity of blood letting, which, in such an instance, will be found more effectual after the bath

than it would have been if performed prior to its application.

In some instances, also, when the bath is administered to patients inclined to be feverish, when blood-letting has not been premised, and especially when too small a cup has been used, or the bath continued a little too long, an uncomfortable restlessness is felt. This circumstance, as well as a headache, if they continue any length of time after the bath, should be relieved by an appropriate loss of blood; also, some agreeable cathartic dose should be immediately taken.

In cases where it may be used with great decision, it commonly produces some throbbing of the head. When this appearance is considerable, the process may be discontinued, and if blood-letting is not necessary, the throbbing will quickly subside, leaving no inconvenience to the patient. In delicate cases, however, it ought not to be pushed up to this pitch; the fire should be lighted up and extinguished, alternately, as it may be found agreeable to the patient.

When the bath is to be a long time continued, as in cases of feeble and very old persons, the smallest cup ought to be used. And in most instances it ought to be repeated once every sixth hour, sometimes once every third hour. Meanwhile, the patient should be supported by nourishment and cordials.

Sometimes it may be beneficial to move the apparatus from the feet to the side of the patient, and so on alternately, as the judgment of the practitioner will quickly discover.

In cases of long standing debility, it sometimes happens that the bath is scarcely put into operation, before the patient feels distressing sickness, threatening danger of fainting. When this happens, let the fire be extinguished, and give the patient a glass of wine and water, and when sufficiently refreshed,

rekindle the bath. After a day or two, more intense heat and greater duration of its application will be borne with less anxiety. In such delicate cases it frequently is necessary to use laudanum, as well as the wine and water. Say ten, fifteen, twenty, or thirty drops, to be given at the close of the process. The durable, stimulant power of the opium, prevents that collapse of the surface, which ought carefully to be opposed in every case. By well timed repetitions of this course, vigor will be regained, and health recovered.

In almost every serious case of any standing, it is necessary, after the bath, to use jugs, or bottles, filled with boiling water, or hot bricks, to aid the feeble excitement of the surface, that it may retain the advantages gained by the bath.

It is worthy of remark, that there is no danger of taking cold, especially in recent cases. The gas which is used, is as much freed from moisture as atmospheric air, insomuch, that it will dry a damp sheet. Besides, in all the instances in which it has been used, I have not known one, by which the patient found any ill effect in that way. Indeed, if such a thing should happen, another application, and a little care, would perfectly correct every inconvenience.

PART II.

HAVING taken a view of such medical agents as more particularly concern my work, I now proceed to give some additional practical observations, in a review of the same grades which are laid down in the foregoing explanations.

And first, inflammatory fever is ushered in by a predisposition with accumulated power. It occurs in the healthful season. And cold alone, or cold combined with fatigue, may almost exclusively be considered as the remote cause.

In this, and indeed in every case, it must be the most desirable object to avoid the predisposition. For this end, it is necessary to guard against too much exposure to the weather, especially if damp and moderately cold. But if such exposure is inevitable, the system should be supported by a comfortable meal. And for a day or two, cider, wine, and ardent spirits, should not be used, except by such as are in daily habits of using them;* and at night, before going to rest, special care should be taken to secure an effectual warmth at the fire. If, however, ordinary measures fail to produce a glowing excitement on the surface, or if an unusual length of time is required to become warm in bed, on a nice inspection it shall be found that a collapse of the skin has already taken place. The roots of the hairs will be elevated in a way resembling the skin of a goose plucked of its feathers and a ligature tied on the arm, as in ordinary blood-letting, will not distend the veins. These appearances universally indicate a forming predisposition.

If a stretching, yawning, and chilness, with a dull or heavy aching in the loins and limbs attend, the

* A very pernicious habit this, which ought to be abandoned.

predisposition may be considered to be complete, and without the interference of art, a fever may be confidently expected.

To correct this state of things, let the patient retire to bed, and receive an intensely hot bath. The pain of heat, and the increase of excitement upon the surface, in most instances, will sufficiently extinguish the accumulation of vital power to restore a balance. It sometimes happens, however, in making this application, that although a favorable determination is given to the excitement, yet, in consequence of the great accumulation of power, too much stress is imposed upon some one weak point. In most instances, the brain, through the delicacy of its organization, is first sensible of this kind of increased action. If, therefore, the bathing produce considerable headache, whether a perspiration is readily induced or not, blood-letting ought to be performed without delay.* And at the close of the process, some suitable cathartic should be administered, as jalap and calomel in robust cases, or calomel, in a moderate portion, followed by some agreeable cathartic dose, in cases which are more delicate.†

Sometimes too, when the accumulation is very great, a single course of treatment is not sufficient completely to remove the predisposition—when this is the case, more or less of the symptoms stated above, will still be felt the next one or two succeeding days, and will mark the necessity of continuing the practice with more or less decision and repetition, as the case may require.

* It is commonly prudent, in robust cases, to let blood about the time the bath is fairly getting into operation.

† In robust cases, say calomel, 10 grs. jalap, 15 to 30 grs.—In delicate cases, calomel, 4 to 10 grs. and oil, or some other suitable article, three hours afterwards.

These instructions respecting the correction of the predisposition, are the more important, because it is within the reach of the most ordinary capacity to understand and execute all that is necessary, for preventing an attack of simple inflammatory fever. Whereas, after the fever is formed, it may sometimes require the most accurate judgment to manage the patient in safety. To the people at large, the superior importance of my system will be evident, chiefly in this, and this chiefly concerns the public. Who, in his senses, will suffer a painful course of sickness to come upon him when it may so pleasantly and certainly be prevented.

OF PLEURISY.

If, however, through neglect or accident, the fever should be formed, the symptoms heretofore described, as marking the state of predisposition, will be more evident. The chillness will increase, and be attended with a pain in the back and limbs, and with difficult and quick respiration, thirst, &c.; and if these appearances are not immediately corrected, a pungent pain commonly will strike the breast.

At this stage of fever, blood letting is a practice perfectly philosophic, and ought to be repeated as often as the pain returns. In performing this practice, however, if the veins do not fill on tying on the ligature, the patient should first be placed in bed, and the bath put into operation. When the veins begin to fill, blood may be let, until the pain abates, and the bathing may be continued until a free perspiration is induced. Some suitable cathartic, as in the predisposition, may be administered, and the patient may take half an ounce of cooling solution once every third hour.* Early the next morning, the bath may

* As a cooling solution, take salt petre, 40 to 60 grains; cream of tartar, 60 to 90 grains; tartar emetic, 3 to 6 grains, water, one pint: a table-spoon full is the ordinary dose.

be again put into operation, and the cooling solution may be continued. And as often as the fever rises and the pain returns, the same treatment may be repeated, with some diminution in extent and severity, according to the abatement of the disease. Where this mode of practice is judiciously employed, the most satisfactory result will rapidly take place. I have frequently cured a forming pleurisy by a single course, that is, in twenty-four hours.

In applying the bath in any recent case, and especially in cases of pleurisy, and other forms of inflammatory fever, I use two cups. The largest and the least. The largest is kept continually burning, and the least is introduced and removed alternately, according to the degree of intensity and continuance of the heat which the patient can conveniently bear. This method secures greater decision in the cure; perspiration is more speedily and safely induced; and the centrifugal determination is more permanent after the process is ended.

The more violent the attack, and the greater the pain, the more speedy and intense should be the application of the bath; and the cure will be the more speedy and decisive. There is much more danger in a temperate than in a violent hot bath. In decision, therefore, nothing is to be feared.

By blood-letting, febrile action is subdued for the time being. By pain of heat, and increase of excitement on the surface, the system is safely and pleasantly disarmed of its accumulated power. By the operation of a cathartic, and the subsequent use of the cooling solution, the heart and central vessels, are continually disarmed of any rising excess of vital power; and by maintaining a balance of excitement from the commencement of the cure, the necessity of blistering is avoided.

If the disease is not obviously corrected by this method, in two or three days, it may be concluded

with certainty that the case is really bad; that the lungs are much injured; and that severe blistering and accurate management are necessary. In this event, the blister which may be applied, should be made to abstract from the internal irritation, to an extent commensurate with the severity of the disease; if a grown person, say eight by ten, or ten by twelve inches square.

And whether the case should assume such serious appearances or not, the same course of treatment should be continued, taking care, from time to time, to adjust the quantity of blood to be lost, and the extent and severity of the bath, to the strength of the patient.



The ordinary practice in this grade of disease is, to let blood without taking an adequate measure to disarm the system of its accumulated power. It follows, therefore, that after a little, she rallies herself, and a second or third, sometimes a fourth bleeding, is found necessary in the course of the first twenty-four hours. The cause which makes such repetition necessary, is obvious. Almost an entire dependence is placed upon the loss of blood, for performing two intentions, each of which necessarily implies an opposite principle: the one, that of putting down the morbid excitement; and the other, that of disarming the system of its accumulated power. As if the principle, "that by a subduction of stimuli, vital power or excitability is accumulated," were entirely forgotten. A fortunate circumstance, however, has saved the lives of thousands, who otherwise must have perished, through the destructive tendency of such absurd practice. A blistering point is discovered! Happy discovery. Let me inquire, therefore, what it is that constitutes the blistering point?

By the loss of blood, as often as the energies of the system are sufficiently rallied to produce a paroxysm of fever, the action of the healthful vessels is reduced, so that, for the time, the power with which they propel the blood into the weakened branches, is not sufficient to increase the disease. The injured vessels, therefore, have an opportunity given them to be at ease, and appearances seem very flattering. After four or five days, and sooner if the blood-letting be too much extended, those happy effects, which at first accompany the loss of blood, are no longer produced. For the moment it may reduce the action, but, presently, every ill appearance recurs; the pulse contracts its diameter, and becomes more frequent; the tongue become dry; the skin sallow; the extremities hard, dry, and hot; thirst increases; expectoration is more scant and difficult; and the patient grows more and more restless. To me the cause of all these distressing appearances is plain. A state of things similar to the predisposition, is artificially induced. By every repetition of blood-letting, the action of the system is reduced more and more below par, till at length a collapse takes place to such an extent, that nothing short of an application to the skin, of sufficient power to produce and maintain a very considerable centrifugal determination, can possibly save the patient. When this stage of things is obviously threatened, the practitioner has arrived at the blistering point. A point at which he ought never to arrive if he can possibly avoid it; inasmuch as it universally implies a loss of the balance of excitement. Not that I would be understood to say, blisters are useless, and may be wholly laid aside; but they should be wholly confined to an intention, either to correct a very obstinate morbid determination, or to abstract from great irritation. And if the system be properly managed from the commencement, the blistering point will not be found necessary, except only for one of those two purposes.

Management, similar to that above advised for the cure of pleurisy, with some additional considerations, will be proper in every form of inflammatory fever. When I say similar management, I mean to be understood, to advise consistently with the great fundamental principle, "THE UNITY OF DISEASE." And time and practice will establish its truth. I know how many difficulties I have to encounter on account of opposing prejudice. Many want to see a definite account given of every mode of disease, each with a separate and appropriate name. They are delighted with the exhibition of a farrago of remedies, the mere recollection of whose names would make a pack horse of one's memory. Let my system be fairly and properly tried, and I believe this error will be corrected. With a little variation in extent and severity, and with some reference to the seat of the pain, it may be repeated,—similar management will succeed in every possible mode of recent disease.

INFLAMMATION OF THE BRAIN.

Phrenitis, or inflammation of the brain, is inflammatory fever, in which the morbid determination of excitement is turned upon the head. The peculiar symptoms attending it, are [a violent pain of that part; an inability to bear light or noise; great restlessness; and commonly a small, tense pulse, though sometimes the pulse is full and strong. In other respects the appearances are the same as those above described. I might add, however, that it is frequently attended with very obstinate costiveness, as if the sensorium had forgotten the intestines, and neglected to furnish them any portion of excitability. For in some cases, the most violent cathartic medicines are used in vain.

In this case, blood should be let freely, and as of-

ten as the violence of the symptoms make it necessary. Measures should be taken for maintaining the surface, as in pleurisy, observing to defend the head with cold applications, as frequently and as extensively as it may be found agreeable to the patient, especially during every application of the bath. Drastic cathartics should be daily administered. And in cases of great violence, the intestines should be continually under their influence for two or more days.* The feet of the patient should be kept carefully warm, and if the pain be obstinate, a large blister should be drawn upon the back of the neck. Light should be excluded, and silence constantly observed.

As in pleurisy, so also in this mode of fever; if the veins do not fill on tying on the ligature, let the bath be applied before any very decisive blood-letting is performed.

INFLAMMATION OF THE LIVER.

Hepatitis, that is, an inflammation of the liver, may be known by a dull pain in the right side, under the short ribs, extending into the right shoulder; sometimes affecting both sides, and felt in both shoulders, with great costiveness and dejection of spirits. Other appearances are such as attend simple inflammatory fever, except that the pulse is commonly less tense, and the appearances generally less violent.

In this case the treatment will also be similar.—Bathe and bleed. But the blood letting will not be as frequently necessary. The same kind of drastic pills noticed in the preceding clause, will be highly useful, to be daily administered, as long as the violence or obstinancy of the pain makes it necessary;

* Aloes, 60 grains, gamboge, 20 grains, calomel, 20 grains. The whole may make 24 pills; 3 to 6 may be given once in 6 hours, according to the violence of the case. To be followed by a dose of oil, or some gentle cathartic, when discontinued.

and a large blister should be applied over the region of the pain. At the close of a case of this sort, it is frequently useful to continue the bath twice or three times a week after the patient seems to be on the recovery; to be applied at night. The following morning, as much mercurial ointment as would be equal in bulk to an ordinary chesnut, may be rubbed upon the right side. In making this application, the patient should sit near to a good fire, and the friction should be pretty intense. After the operation, he should retire to bed; and rest till he is quite refreshed. This practice should be repeated every week, till all pain and soreness is removed out of the region of the liver.

INFLAMMATION OF THE STOMACH, &c.

In gastritis, or inflammation of the stomach, as also in enteritis, or inflammation of the bowels, the superior value of the hot bath will always be evinced. In these cases, the stomach commonly rejects every kind of medicine, whilst an alarming abandonment of the surface, and a corresponding violent introversion of excitement, are threatening speedy destruction. That affection commonly called bilious colic, may properly be introduced here, as an instance of inflammation of the lower intestines, requiring similar management. By the application of intense heat to the surface, together with a repetition of blood-letting, as often as the pain makes it necessary, aiding the intention with appropriate doses of calomel, repeated every sixth hour, with mild injections at the close of each period, the cure will commonly be effected in a short time. If it should be protracted, however, and especially if the vomiting or pain should be obstinate, a large blister should be applied over the region of the stomach or abdomen.

These reflections upon inflammatory fever, are predicated upon the supposition, that they occur as the primary affection, and, of course, as having been induced through a predisposition with accumulated power. But it sometimes happens that similar appearances take place, as symptoms of fever in different seasons of the year, whether ushered in with predisposition with exhausted or accumulated power. It is therefore necessary, in every instance, to mark well the quantity of energy which may be present in the system, and to adjust the treatment accordingly. If the quantity of vital power be nearly or quite entire, the treatment should always be decisive. If there be some degree of prostration, the management must be more delicate, as prostration is extended.*

INTERMITTING FEVER.

Intermitting fever probably has for its primary remote cause, marsh miasmata, which partially disarm the system. The disparity of temperature between the nights and the days, may be a secondary remote cause, hastening the production of an accumulation of vital power. Probably, vernal intermittents occur in some regions under the same circumstances which produce violent pleurisies in others—So that, whatever other considerations might be associated with our views of an intermittent, cold has the most considerable agency in its production.

* By using the necessary vigilance in blood-letting and other evacuations, it may be known whether the system generates vital power in ordinary quantity. Speedy and sprightly reaction after depletion, always indicates a goodly stock of vital power.—Depletion, followed by a languid pulsation, a collapsed surface, and emptiness of the veins, always evinces an exhausted state of the sensorium.

To prevent the formation of a predisposition to ague, therefore, good fires should be kept up every night throughout the whole year. The poor Africans upon our southern rivers, reap the benefit of this precaution, whilst their masters suffer all the pains of annual intermittents.*

If, however, such simple means fail to prevent the formation of the predisposition, the patient coming under its influence, will have an inclination to yawn and stretch; he will experience some aching in his back and limbs; his nails will put on a livid hue; and his skin and veins will exhibit appearances sufficiently indicative of that collapse which always attends the forming state of fever. He should then be immediately put to bed, and receive a bath of sufficient extent to correct all these appearances. And this should be daily repeated, till such appearances cease to return. If, however, any of the painful symptoms increase upon the use of the bath, the patient should be bled, and take a dose of jalap and calomel, or calomel alone; and after the operation is over, the bath should again be used, and repeated as often as the case may require.

When no sufficient defence is made for the correction of the predisposition, and the fever is actually formed, the time of its accession should be anticipated by the use of the bath, an hour or two before the commencement of the ague, to be managed as above advised. In this form of fever, there is a daily production of the predisposing circumstances; and, therefore, a proper use of the bath in the time of the intermission, will have an effect similar to an effort to prevent an attack in the first instance of predisposition.

* Some masters escape, not by the kindly influence of culinary fire, but through the deadly agency of ardent spirits. The effect for the moment is similar. But oh! their end! their dreadful end!

To correct the chilly state, when actually commenced, the bath should be put into operation; and so soon as the surface is sufficiently heated to gain the advantage which may be derived to the pulmonary veins through the laws of association, blood may be drawn from the arm.* By a diminution of the volume of blood returning to the heart, together with the sudden debility which this practice brings to the heart itself, the impulse of blood into the pulmonary artery is diminished, at the same time that the action of the pulmonary vein is increased. A free circulation through the lungs is produced, and the chill immediately passes away.

If the bath and cathartic medicines fail, wine and bark,* in the usual way, may be used in time of the intermission, which, under such circumstances, will almost universally succeed.

REMITTENT FEVER.

Remittent fever perhaps occupies an intermediate grade, between simple inflammatory and continued fever. The predisposition is induced by the heat and poisonous gasses prevalent in the summer. These, as remote agents, cause debility. Cold induces a collapse on the surface—and that accumulation of power is thrown upon the central ves-

* It is not necessary to let blood in every case of ague. And if no painful symptom is produced by the operation of the bath, the blood-letting may be omitted.

† Perhaps the following is the best general method of taking this article:—bark, 1 ounce; cream of tartar, 1 ounce; powdered cloves, 1 dram and a half, ground together, and divided into eight doses. Four doses a day, to be taken in time of the intermission. If the fever should continue obstinate after the bath and bark, as advised, I should draw a large blister, repeat the bath, and advise the daily use of good fires. If the liver seem to be involved, I should use catamel and mercurial ointment, as advised under the head of hepatics, or inflammation of the liver.

sels, by which the storm of fever is raised. The more sudden it is brought about, and the more robust the patient, the nearer the appearances will be assimilated to simple inflammatory fever, and the contrary.

The predisposition to this grade of fever, may be prevented by avoiding all excess of labor, diet, loss of sleep, &c., and by warming at the fire every morning and evening. After the predisposition is formed, or the fever has actually commenced, the same principles and precautions are to be observed which have been stated above—remembering only, that as there is greater prostration, less depletion can be safely borne than in inflammatory fever. And that the degree of decision should be regulated by the violence of the symptoms in every case.

For the cure, bleed and bathe—or bathe and bleed—or bathe only; according to the urgency of the case, and the state of the surface. Then give calomel and jalap, or calomel followed by a dose of oil,* every day, if necessary, till the symptoms abate. Afterwards, use the bath in the morning, and a gentle cathartic in the course of the day, for two or three days, gradually laying aside the practice as the symptoms disappear.†

CONTINUED FEVER.

Continued fever is ushered in by a predisposition which differs from that of a remittent fever in nothing, except only, that the exhaustion of vital power is greater. The same management, therefore, will be proper to prevent the predisposition, and the treatment may be similar for curing the

* When oil is offensive, any other gentle dose may be preferred.

† If the symptoms seem obstinate, a blister should be drawn upon the region of the stomach. If a grown person, say 8 by 10 inches in size.

fever when formed, remembering only, that there is less necessity of blood-letting in this, than in the former case—and that drastic cathartics, for the same reason, are not to be as frequently used.* Thirty drops of the spirit of nitre, diluted with a little cold water, may be given once every second hour; and plentiful dilution, such as chicken water, table tea, apple water, toast and water, &c. may be constantly used at discretion.

In this grade of fever, the bath should be used every morning and evening, but not often with an intention to produce a profuse sweat. A very gentle but free perspiration is all that is necessary.

In remittent and continued fevers, it sometimes happens that determinations take place, threatening injury to some of the vital organs.. If this should happen, and continue after using the bath a few times, a large blister should be drawn, for the reasons heretofore stated.

TYPHUS OR NERVOUS FEVER.

Typhus fever is the most distinct exhibition of disease consequent upon a predisposition with exhausted power. In this form of fever, debility so prevails, and the abandonment of the surface is so complete, that the skin is almost left without a supply of blood. The eyelids of the patient are not sufficiently expanded to cover the eyes—the skin appears to cleave fast to the bones of the sternum or breast, and the surface, generally, is dry and husky. The narrow limits to which the feeble excitement is reduced, are scarcely sufficient to expend the

* In this, and some instances towards the close of remittent fever, the following is a proper cathartic dose:—rhubarb, 25 or 30 grains; manna, 2 drams; Rochelle or glauber salts, 2 drams. The whole for one dose, for a grown person, to be dissolved in a little hot water.

slow production of vital power, and determinations upon the muscles, evinced in nervous twitchings, or wild mental effort, in form of a delirium, are employed by the system to maintain an equilibrium. The heat which is collected and retained on the surface, is accounted for in a preceding part of this work.

This grade of disease may have for its remote cause, the pernicious gasses exhaled from a cellar or prison—or some region of atmosphere more expanded. sometimes limited to a family or neighborhood—sometimes spread over an extensive section of country. It may also be produced by loss of sleep, by excessive indulgence, by unwholesome or insufficient diet, &c. &c.

The predisposition is attended by unaccountable debility, great propensity to sleep, giddiness of the head, and an unusual inclination to be near the fire. As the case progresses, some pain is felt in the back part of the head and neck, aching in the loins and limbs, &c. &c. which gradually increase, till the disease is completely formed.

When practicable, the remote cause ought to be avoided:—when this cannot be done, the patient should avoid fatigue. Sometimes rest and composure for a sufficient length of time, will completely correct the predisposition. But a moderate use of the bath, for a day or two, or more, every morning and evening, would contribute much towards the certainty of the effect.

After the fever is formed, first administer a moderate bath, then an emetic, followed by a gentle cathartic.* Afterwards, a daily repetition of the bath when necessary, morning and evening: during the intervals between the repetitions of the bath, the surface should be defended by the application of jugs fill-

* For the emetic, give 5, 10, or 15 grains of Ipecacuanha. For the cathartic, give the dose advised in a note under the account of continued fever.

ed with boiling water, or hot bricks, frequently renewed to prevent a declension of the warmth, which should be kept up so as to avoid a repetition of the collapse. An occasional repetition of a suitable cathartic, cordial drinks, as panada, chicken broth, wine and water, and to quench thirst, a little of the spirit of nitre, as before advised. In this, and in every grade of fever where depletion is not necessary, a large blister drawn on the region of the stomach frequently contributes to hasten recovery.

Having thus given a general view of disease, together with some instructions, for the formation of a proper intention, in attempting its cure; having said a few things respecting the mode of operation of some articles of medicine, and specified a simple method of applying them in the cure of fever, I shall now drop some remarks upon a few particular cases.

YELLOW FEVER.

Yellow fever is a high grade of morbid excitement, consequent upon some poisonous agent, suddenly produced, and acting upon persons with good stock of vital power. After the necessary depletion, the hot bath has been found beneficial, and I would expect great advantages from it if administered upon the principles which I recommend.

GOUT AND RHEUMATISM.

Gout and rheumatism are the result of morbid determinations upon the joints or muscles, or fascia, or sheaths of the muscles, or tendons. The bath, with or without depletion, according to the state of excitement, will always afford relief. It should be used so far and repeated so often as may be necessary to secure and maintain a determination of excitement upon the surface.

If the appearances should be obstinate and inflammatory, after using the bath decisively, as advised in

pleurisy, the patient may be bled. The bowels should be regulated as in every other form of disease; and if necessary, the following liniment should be applied to the parts most effected, viz.:

Take spirit of wine, or high proof spirit of any kind, one quart; spirit of turpentine, one pint; cayenne, or red pepper, half an ounce, or an ounce; and camphire, half an ounce. Shake up the preparation when used. Cotton or flannel cloths of suitable size, may be moistened with the liniment, and applied at discretion.*

If the case be obstinately painful, notwithstanding the bath and liniment, I should suspect the seat of the pain to be in the nerves, and would have recourse to stramonium, as follows: take of the ripe seeds twenty-four grains, finely powdered; gum arabic, also powdered, 24 grains; make the whole into 24 pills—two or three to be given night and morning for a week; and afterwards to be repeated and suspended at discretion. After placing the system under the agency of this article a week or two, try the bath and liniment, as before, and, finally, draw a very large blister upon the part affected.

CROUP OR HIVES.

In this disease Dr Rush makes two important distinctions. The first is attended with spasm and a dry cough. The second is without spasm; and the patient under its influence, is able to cough up a considerable quantity of phlegm.

The spasmodic croup comes on suddenly, and that generally in the night; has frequent and perfect intermissions of the symptoms for hours, and even for days; the child will probably go to bed in good health, and in an hour or two wake in a fright, with his face

* Bags of heated sand, moistened with salt water, is an excellent intermediate application.

much flushed, or even of a purple color. He will be unable to describe what he feels; will breathe with much labour, and with a peculiar, convulsive motion of his belly; his breathing will also be very quick, attended with a sound as if he were threatened with a speedy suffocation; the terror of the child increases his disorder, and he will cling to the nurse; and if not speedily relieved by coughing, belching, sneezing, vomiting, or purging, the suffocation will increase, and the child will die. It is remarkable that the cough in this disease very much resembles in sound the barking of a young dog. For the cure, give the hot bath.

If the difficulty of breathing, a flushing of the face, with pain in coughing, continue, after a decisive bathing, the patient should be bled, and if necessary the bleeding should be repeated. If the symptoms continue after the bleeding, repeat the bath. Then, if necessary, give 5 or 6 grains of ipecacuanha, with 2, 3, or 4 grains of calomel or turpeth mineral, or a teaspoonful of antimonial wine; or, if it can be procured, ten grains of powdered seneka, sometimes called rattlesnake root. Either of these doses may be mixed up in honey, and should be repeated every 20 or 30 minutes, till it produces the intended effect. Calomel, 3 to 6 grains, with julep, 8 to 10 or 12 grains, may be used as a cathartic.

The second distinction is attended with symptoms very similar to those of the first, but may be known by its coming on gradually, and that commonly in the day time; by its continuing and frequently increasing for several days without any remarkable remission or even abatement of the symptoms; by the discharge of phlegm from the windpipe in coughing, as also by the appearance of slime in the stools. Apply the bath—bleed and puke in this case as in the first distinction.

As a purge, calomel only should be used. Great reliance should be placed upon this medicine. A

large dose should be given as soon as the disease discovers itself; six grains to a child four years old. Afterwards, smaller doses should be given every day, so long as any of the symptoms continue. From two to four grains might answer this intention.

CHOLERA MORBUS, OR PURGING AND VOMITING.

This disease makes its appearance in warm climates, as early in the season as April and May; but in colder climates not till the middle of June or first of July. Children are subject to it from one or two weeks till two years old.

It sometimes begins with a diarrhœa, which will continue for several days without any other complaint; but most commonly violent *vomiting* and *purgings*, and *high fever*, attend. The matter discharged from the stomach and bowels, is yellow or green, and the stools are sometimes slimy and mixed with blood, without any appearance of bile; sometimes too, the stools are thin as water; worms are frequently voided, whether the evacuations be bilious or not: the patient seems to suffer much pain; draws up his feet, and is never easy in one posture, his pulse is weak and quick, his head very warm, while his hands and feet are cold; the fever remits and returns with greater violence every evening; his head is sometimes so much affected, that he not only becomes delirious, but will rave and try to scratch or bite his parents or nurse; his belly and sometimes his face and limbs swell; he has great thirst in every stage; his eyes, appear languid and hollow, and he sleeps with them half closed; so great is the insensibility of his eyes that flies light upon them while open, and do not excite the least motion in the eyelids.

Sometimes vomiting continues without the purging, but more commonly the purging remains without the vomiting, through the whole course of the disease.

The stools are sometimes large, emitting a very disagreeable smell; at other times there are scanty stools without smell, and like the food or drink taken in by the child.

This disease is sometimes fatal in a few days, and in some cases even in twenty-four hours. Much depends on the state of the weather; one cool day frequently abates its violence. The time of its duration varies exceedingly, from a few days to six weeks or two months. When it is of long standing and tending to death, there is commonly great wasting of the patient's flesh, his bones will sometimes come through the skin. Towards the close of the disease, there appear purple spots on the skin, with hiccup, convulsions, ghastly countenance, and sore mouth. When these last appearances come on, the case has generally become incurable.

On its first appearance apply the hot bath morning and evening, for two days; afterwards, if necessary, keep jugs or bricks properly heated to the patient, during the evening, and through the night and morning. In the meantime, give a puke to evacuate the bile from the stomach; this may be done by a dose of ipecacuanha or tartar emetic, and it should be repeated as often as there is vomiting of bile, in every stage of the disease.

The bowels should be purged with manna, castor-oil, or magnesia. Rhubarb is not a proper remedy till the fever is in some considerable degree subdued. If, however, the puking and purging have continued, till there is good reason to believe that the offending matter has been thrown off by the natural efforts, the pukes and purges must be omitted, and instead of them, a few drops of the tincture of opium may be given in a chalk julep. Say, prepared chalk or crabs' claws, eight grains to twenty; tincture of opium, half a drop to three or four; cinnamon water, or peppermint tea, at discretion; syrup, as

much as may be sufficient to make it pleasant, to be given every three, four, or six hours. Sometimes a few drops of spirits of hartshorn, will be a useful addition to the above julep. Blister might be applied to the region of the stomach. Mint and mallows' teas, or blackberry briar-root, infused in cold water; a decoction of shavings of hartshorn, or a solution of gum arabic, or the pith of sassafras wood, steeped in warm water, with the addition of a little mint or cinnamon; either of these articles may be prepared and used as a drink to compose the stomach or bowels. Glysters made of flaxseed tea, or of mutton broth, or of starch dissolved in water; either of these, with the addition of a few drops of tincture of opium, may be frequently injected. Plaisters of venice treacle, where it can be had, or flannels wetted with a strong infusion of bitter herbs, in warm spirits, or Madeira wine, might be applied to the stomach; or what might be still more convenient, a cloth, folded so as to be two or three inches square, might be wetted with the tincture of opium and applied as before; or the liniment advised in rheumatism, may be used at discretion. As soon as the violent symptoms are subdued, give bark in the form of a decoction, or in substance, to which may be added a little nutmeg; or if bark be offensive to the patient, use port wine or claret in its stead.*

At this stage, it will be proper to indulge the child in any particular article of strong food he may happen to crave, as salted or dried fish, salt meat, butter, or rich gravies, and even the strongest cheese.

In the recovering stage of the disease, it will be found very beneficial to carry the child out to breathe a fresh country air.

* Peruvian bark, quilted between two pieces of cotton cambric, and made up in the form of a waistcoat, may be worn as an excellent remedy in the last stages of the disease.

In places where this complaint prevails, the following precautions will probably prevent it:

The dress of children should be carefully accommodated to the state and changes of the weather. Salted meat should be daily but moderately used through the sickly season. Good, sound wine may be given them in portions adapted to their age, from a teaspoonful to half a wine glass full, at the discretion of their parents, especially mornings and evenings. Particular regard should be had to cleanliness, both with respect to their skin and clothing. Lastly, persons living in sickly towns, ought to be specially attentive to all these precautions; and where it can be done, they should remove their children to the country before the sickly season.

A well-timed bath will commonly prevent the disease from fixing itself, in almost every case.

DYSENTERY, OR BLOODY FLUX.

This disease is attended with frequent slimy or bloody stools, while at the same time the usual contents of the intestines are very commonly retained, and with a violent griping and a painful or frequent urging to go to stool. It occurs in the same seasons with intermittent fevers, and like them, it follows long dry, long moist, and hot weather. Sometimes it comes on with cold shiverings and other marks of fever, and in some instances the fever attending is very violent and inflammatory. Sometimes, though not so frequently, a diarrhœa is the first symptom. There is commonly a loss of appetite, frequent sickness, nausea, and vomiting, which are considerably proportioned to the violence of the disease. In every case where there is violent fever, the danger is considerable.

On the first appearance of this disease, apply the bath, and give a free dose of oil; then, if necessary, bleed, and if the pains and other violent symptoms

continue, the blood letting must be repeated every twelve or twenty four hours.

Pukes are sometimes proper, but they should be used when there is great sickness at the stomach only, and if the marks of fever as above be present, a puke should not be administered till after one or more bleedings. Frequent cathartics, but they must be of the most gentle sort, as cream of tartar, purging salts, manna, castor oil, &c.; one of these should be used every day while the disease continues. Let it be remembered that jalap and rhubarb are not proper in this complaint.

Glysters of flaxseed tea, or mutton broth, with a little tincture of opium, should be injected three or four times for every twenty-four hours. If there be great heat and pain in the bowels, cold water might be injected in the form of a glyster; and indeed it could do no injury if there were no very inflammatory symptoms.

Opium. A dose of the tincture, or a pill of the solid opium, should be given every night; and after sufficient evacuations, it might be used every six or eight hours, if necessary.

Cooling drinks. Whey, flaxseed tea, camomile tea not too strong, mallows' tea, mullen tea, and barley-water, are all proper for this purpose. And if there be much fever, cold water is a very proper drink.

A decoction of gum arabic, or shavings of harts-horn, with spices; mutton suet boiled in milk; a decoction of blackberry roots; or a gruel made of a little flour prepared according to doctor Buchan, viz.: take a few handfulls of fine flour, tie it up in a linen cloth, and boil it in a pot for six hours, till it becomes as hard as starch, afterwards grate it and make it into gruel. Either of these will be very useful when the patient is much spent. Blisters may be applied to the abdomen, wrists, and ankles,

but not commonly until after the fifth day. In the close of the disease, port wine, Maderia, or sherry wines are proper. Where the fever intermits, and especially where it assumes the shape of the *third day fever and ague*, the bark is a very proper remedy, to be given chiefly in the fore part of the day.*

During the whole course which may be required to effect a cure, it is proper to use the bath daily, and to maintain its effects by the aid of jugs filled with boiling water, or hot bricks, frequently renewed. But if the bath be properly used in the first appearance of the disease, little else will be necessary in any ordinary case.

Bowel complaints are commonly instances of inverted excitement. It is all important, therefore, in effecting their cure, to secure a return of the circulation to the surface. The bath will aid in the accomplishment of this intention in every case. Its decisive powers will be most certainly evinced in the first onset of the complaint. Yet it is equally important in cases of standing, though it requires more additional aid: for instance, chronic diarrhœa, therefore, which is always attended with a dry skin, will be the more certainly relieved by the aid of this remedy. But in this case, during the intervals of bathing, the liniment recommended in rheumatic cases, should be freely and extensively used, and the following bolus may be taken at discretion, viz.: take of gum camphire, 30 grains; opium 3 grains; volatile salt of hartshorn, 30 grains; ipecacuanha, 4 grains; syrup, as much as is necessary to prepare the bolus: the whole to make six doses; one to be taken every sixth, eighth, or twelfth hour, according to circumstances. In some instances it is every useful to draw a large blister on the abdomen, to be repeated as of-

* Or apply the bark waistcoat, as advised in a note under page 84.

ten as it heals, till the disease becomes completely manageable without it. Sometimes, too, it is highly useful to the patient, to precede the hot bath by a general washing of the skin with a cloth wetted with soap-suds or proof spirit. There is no danger of taking cold from this practice if the patent bath be immediately employed.



Colics may be the effect of inflammatory action, or of spasm. In either case the bath will afford relief. In the one, aided by blood-letting it diffuses excitement, and lessens the force of the determination—in the other, it extinguishes the accumulation of vital power, upon which the spasm or cramp depends. After an attack of colic, some appropriate cathartic ought to be used in almost every case.

FEMALE COMPLAINTS, &c.

When certain peculiar appearances come on too slowly, attended with pain, &c., the bath should be used at night, to be aided by the following dose:—gum camphire, 10 grs., gum arabic, 30 grs., loaf sugar at discretion, cinnamon water, or fennel-seed tea, sufficient to dilute the whole. This may be repeated every hour, till it procures ease to the patient. If, by alternate exposure to heat and cold, or by any other accidental means, these appearances cease improperly, there will be a sensible fulness, or increased motion of the blood, producing a swimming, and dull, heavy pain of the head, which is increased on stooping down; a redness; a fulness, with a sense of weight across the eyes; an aversion to motion; an unusual sense of weakness and heaviness of all the limbs, and sometimes a bleeding at the nose, &c.

Where these, or most of these symptoms occur, let blood from the foot, ten or twelve ounces, to be repeated as occasion may require. Give a hot bath on going to bed; followed by a glass of wine.— Then give a portion of calomel and aloes, three grains each. Syrup of some kind may be added so as to form it into a pill or two, or so much as to make it of the consistence of honey. Continue the bath, and calomel and aloes, for three successive nights.

During the recess of the complaint, the patient should avoid exposure to wet and cold weather. And at the next period proceed through the same course, viz.: bleed, bathe, and give calomel and aloes for three successive nights.

There is a variation of this complaint not so suddenly induced as the former, and most commonly incident to those who live in indolence. The symptoms are great paleness or rather yellowness and bloating of the face, shortness of breath, loathing of food, indigestion, disposition to eat chalk or marle, great weakness, quick and weak pulse, swelling of the feet and ankles, and, in some instances, a bloating of the whole body.

For the cure in such a case, give a hot bath at night, as before, and one dose of aloes and calomel. Repeat the bath two or three times a week. Give one or two grains of calomel every second or third night, for fifteen or twenty days. Bitters of camomile and orange-peel steeped in boiling water, may be used at discretion.

Afterwards, use the tincture of steel, or take rust of iron prepared, one ounce; gum myrrh, one ounce;* nutmegs, No. 2, or cinnamon, half an ounce. The whole to be finely powdered, carefully mixed,

* If the gum myrrh be offensive, it may be omitted, regulating the dose accordingly.

and kept in a close vessel. If rust of iron cannot be had, the salt of steel will answer, using half the quantity. Of this preparation, if made with the rust of iron, six or eight grains may be taken from four to six times a day. If prepared with the salt of steel, three grains will be the dose. The portion of either ought to be varied according to circumstances. It excites a little sickness of the stomach. But if a puking or too violent sickness be excited, the dose may be lessened. On the other hand, if no considerable effects are observed, it may be enlarged. Regular exercise; as friction with a flesh-brush, or flannel; riding in a carriage, or on horseback, &c. Sometimes rhubarb, five grains, united with opium, half a grain, given every night when great costiveness does not forbid their use. Flesh diet with wine and water when no fever exists.

And when the patient begins to regain strength and color, at every appearance of the pains, &c. use the hot bath, to be followed by a dose of camphire, as above, or a teaspoonful of paregoric.

Again: these peculiarities sometimes come on too often for the strength of the patient. This most frequently happens to women of a soft, delicate habit; to such as use tea and coffee too freely, and who do not take sufficient exercise. It is sometimes brought on by excessive fatigue, and this may happen to those who are temperate and industrious. In either case, its approach may be known by a pain in the loins and hips.

Observe this symptom carefully, and on its first approach let the patient take a hot bath, to be followed immediately by a dose of opium, or laudanum. If opium, say from one to three grains. If

laudanum, from 25 to 50 drops; and, if necessary, repeat the same every sixth or eighth hour.

If excessive labor be the cause of the disease, rest, of course, is indispensable for effecting a cure. If both these fail, it will commonly be necessary to let a little blood.

Where too strong motion of the arteries can be ascertained as the cause, it may be entirely removed by gentle bleeding and purging, occasionally repeated.

If much weakness, paleness, and a disposition to bloat attend, give half a grain of opium every 6 hours, and at intervals of three or four hours, give twelve or fifteen grains of an equal mixture of allum and gum kino, to which may be added, a drop or two of the oil of cinnamon. Nauseate the stomach with small doses, from one to five grains of ipecacuanha. Apply blisters to the abdomen and extremities.

If none of these things succeed, a gentle course of mercurial salivation ought to be tried; interspersing the same practice above advised at proper intervals.

Sometimes a particular appearance of a whitish complexion, &c. &c. presents itself instead of the natural one, and is very troublesome.

For the cure in this case, give wine and iron—using the bath two or three times a week. It is sometimes of service to use a mixture of turpentine with honey; each in equal quantity, a teaspoonful the dose—to be taken three or four times a day. Wash the parts with milk and water; and use the following injection:—take white vitriol, 60 grains; sugar of lead, 60 grains; the whites of two eggs; beat them together, adding water, gradually, till it amounts to six gills: boil and strain, and it is ready for use.

This injection might be prepared with or without the addition of lead. That which is most effectual of course will be preferred.

In violent floodings, under whatever circumstances induced, with or without the aid of blood letting, or opium, as the case may require, the bath will be found an invaluable remedy. Upon the principles of unity of disease, a morbid determination of the blood to the parts concerned, with an associate abandonment of the surface, is the disease. The intention for effecting a cure, must therefore be obvious to common sense.

Great sickness of the stomach and vomiting are very common complaints in the early stages of pregnancy. In some instances the vomiting continues through the whole course of gestation, and in others disappears after some weeks, but to return again towards its close; when violent, in a case where there is a full habit of body, it is often necessary to let blood, from eight to ten ounces, from the arm. After the bleeding, and in cases where through the weakness of the patient no blood can be spared, the vomiting may be removed by some of the following remedies:

1. Magnesia, two teaspoonfuls in a cup of peppermint tea, to be repeated every one, two, or three hours.

2. Salt of tartar, 20 grains, lime juice or good vinegar, half an ounce, spring water, one and a half ounces, common syrup a spoonful: to be speedily mixed, and to be taken in a state of effervescence. It may be repeated once in three or four hours if necessary; or dilute half an ounce of muriatic acid with a quart of water; a tablespoonful may be taken three or four times a day, in half a gill of any agreeable drink, sweetened at discretion.

3. Or an infusion of columbo or camomile, with orange peel, in boiling water. The columbo is thought most effectual. It may be so managed, as to take from ten to twenty grains for every two or three hours if necessary.

4. Or where the vomiting is excessive, opium from half a grain to a grain, to be repeated every one or two hours till the complaint abates.

Some one or more of these remedies, aided by the use of the bath morning and evening, for a day or two, will seldom fail to afford relief.

If the case be violent, the patient should remain in bed, and hot jugs and bricks should be employed to maintain the advantages gained by the bath.

Some women are also frequently subject to heartburn. If the complaint be violent, nothing perhaps is better than a small dose of ipecacuanha, so as to procure a motion or two. After the puke use the following preparation:

Magnesia and spirits of sal ammoniac, or spirits of hartshorn, of each, the eighth of an ounce; cinnamon water, or a strong infusion of cinnamon, three-eighths of an ounce; pure spring water, five ounces. Of this, two or three table spoonfuls to the dose, as often as the heartburn is distressing. If, however, this complaint is the consequence of a loss of digestive power, the strength of the stomach must be restored by the use of some bitter infusion, as orange peel, camomile, columbo, bark, &c. Dilute muriatic acid; and, finally, some preparation of steel, with exercise, might also be employed. In this also the bath should be occasionally used.

Tooth ache is a very distressing symptom, and may be removed in most instances by the use of the hot bath only.

FILES.

Most fleshy persons, and more commonly those who lead sedentary lives, are subject to the distressing complaint called *piles*. If the attack be of the more moderate kind, a gentle dose of cream of tartar and flower of sulphur combined, will afford con-

siderable relief. Cold applications of any kind, as of cloth wetted in cold water or spirit and water, would answer the purpose. Also, the following ointment: take the yolk of one egg, tincture of opium or laudanum, three teaspoonfuls; neatsfoot or other oil, one table spoonful, to be mixed and applied. Let the tincture and the yolk of the egg be first mixed together, and afterwards the oil may be added. This ointment gives relief when much disposed to itch. If they protrude outwards, press them between the thumb and finger, and at the same time anoint and put them up carefully. Those subject to this complaint ought to lie down upon their backs for a few minutes after every evacuation.

An occasional use of the bath will invite the circulation to the surface, and very much aid the cure. An ointment impregnated with the virtues of the leaves of stramonium, *Jamestown weed*, is highly recommended.

A diarrhœa is sometimes very troublesome, and injurious to pregnant women. If attended with fever, let blood from the arm, from six to ten, or fifteen ounces, according to circumstances, and apply the bath.

After the blood-letting and bath, a dose of oil, or the following, viz.: rhubarb, 25 grains; manna $\frac{1}{2}$ oz.; Rochelle salt, $\frac{1}{4}$ oz.; dissolved in half a gill, or a gill of hot water; the whole for one dose. Should there be sickness at the stomach after all these, a dose of ipecacuanha, 15 or 20 grains. When the necessary evacuations are procured, take gum arabic, 1 ounce; prepared chalk, 1 ounce; magnesia, 2 or 3 drams; powdered opium, 10 grains; oil of cinnamon, 15 drops; loaf sugar at discretion; water, one pint; a table spoonful the dose; to be repeated three or four

times a day, or oftener at discretion. In the mean time, the starch glyster with tincture of opium, or a glyster made of boiled flour or of mutton broth with the same tincture, may be thrown up every three or four hours if necessary.

Sometimes blistering the wrists and ankles is found beneficial after the feverish symptoms are subdued. Bathing the feet frequently in hot water, might also be tried.

A painful inclination, and an irresistible straining to urinate, at the same time, effecting very inconsiderable discharges, mark the disease called *stragnury*. In such a case, apply the bath.* If necessary let blood. Then, as a cathartic dose, give manna, one ounce, dissolved in hot water, to which add sweet oil, one ounce, to be repeated at discretion. As often as necessary repeat this practice, aiding the intention with frequent injections of warm milk and water. The patient may also use 30 or 40 drops of spirits of nitre, every hour, in a little barley water, or melon-seed tea; and after the necessary evacuations, a dose of laudanum may be taken sufficiently large to procure ease.

Sometimes a strange distention of the veins of the legs takes place in the last months of gestation. To those who may never have seen such a case, it might give considerable alarm; but it is not followed by any immediate danger. A disagreeable numbness commonly attends it, and the distorted veins elevate

* Between the repetitions of the bath, jugs filled with boiling water, or hot bricks wrapped in moistened cloths, may be applied to the seat of the pain.

the skin, producing great unevenness. The proper remedies here, are small, frequent blood-letting and gentle purging. Also the bath once or twice a week, confining the application to the lower extremities.

Cramp also occurs chiefly during the last months. For the cure, keep the bowels gently open. If it attend a full habit, bleed. If it should come on in the night, jump out of the bed and stand upon the feet till it goes off. Sometimes grasping a cane, or bedpost, or a roll of sulphur in the hand, affords relief. In this case the bath would afford the most certain cure.

Puerperal or child bed fever, may take place in twenty or thirty hours after delivery; and sometimes it happens after as many weeks.

It commonly begins with a chill, attended with a nausea at the stomach, pain in the head, loss of strength, and restlessness. The skin is sometimes dry, at other times partially or unusually moist. The tongue is dry, and sometimes covered with a black crust. The pulse varies, being in some cases weak and small, and in others full and tense. Wandering pains are felt in the abdomen, and sometimes in the sides, resembling pleurisy. In some cases they extend to the shoulder blade, to the short ribs, liver, and spleen, then descend to the bladder and lower intestines. The pain becomes so acute in some instances, that the patient cannot bear the weight of the bed clothes. The face has a sorrowful appearance, and every word and action will more or less express her sufferings both of body and

mind. Sometimes the abdomen is enlarged as in pregnancy. Pains are felt in the back and hips, the legs swell, and at length the breathing becomes difficult. So great the loss of strength as to be unable to turn in bed. Vomiting and diarrhœa, and sometimes a stubborn costiveness take place. The lochia are sometimes suppressed, at other times they continue throughout the disease, and when the inflammation is confined to the uterus, this must be a favorable circumstance. Urine is scanty, frequently evacuated, and turbid. Spots appear on the joints. It continues from three to five days, and sometimes in the country, to ten, fifteen, and twenty. Although the appearances vary in different patients, yet by this catalogue of symptoms, the puerperal fever may be known. On the first appearance of the attack give a hot bath, and if necessary, bleed more or less, according to the violence of the attack. Then a mild vomit of fifteen grains of ipecacuanha, with one quarter or one half grain of tartarized antimony should be given; and after a gentle evacuation downwards, a hot bath and opiate at night.—Glysters, fomentations, and an opening draught of senna, manna, and cream of tartar combined, may be daily repeated. If there be frequent or involuntary stools, glysters of chicken water, or flour and water boiled to a proper consistence, or flaxseed tea, ought to be often repeated. Then an infusion of columbo root or flowers of camomile may be used, as also the starch glyster, with the addition of fifty drops of the tincture of opium; also, spirits of nitre one quarter of an ounce, clean water, one half pint, and white sugar at discretion—of this mixture give two spoonfuls every hour. She should breathe pure air, and strict regard should be had to cleanliness. Rest must be secured, and silence carefully preserved. The bath should be daily repeated once or oftener, and jugs filled with hot water should be used during the interval.

All women are alarmed at the time of the final cessation of certain appearances, believing that some ill consequences may follow. The truth is, that scarce one of a great number of women, suffer more than temporary inconvenience. It must be acknowledged, however, that if there be a disposition to disease in the constitution, it will proceed more rapidly when these cease, by being deprived of that local discharge by which they were before relieved. Many remedies have been advised to prevent, and correct the mischief, expected or supposed to exist. But the present mode of practice is, to bleed occasionally and give gentle cooling purges, as manna, cream of tartar or common purging salts, &c. avoiding all kinds of medicines and diet which are heating.

This practice is both rational and successful. I have found it a good way, to lessen the quantity of blood to be taken, in a gradual manner, so as to imitate as nearly as possible, the most regular cessation in the natural way. And as often as inconvenient symptoms are present or threaten an encroachment give a hot bath, to be followed by a dose of laudanum in feeble cases, and by a dose of some pleasant cathartic the following day. In robust cases the laudanum may be omitted, and where it is preferred, wine may be used instead of the opium.

Measles is a disease of the skin. It occurs when the seasons are marked with more than ordinary cold.

If the eruption is too slow in making its appearance, one application of the bath brings it forward. If the bath do not relieve all pain, bleed, and give a gentle cathartic. If the eruption recede prematurely, another application will correct it. In other respects manage as in simple inflammatory fever.

Art can accomplish no more than three great and leading intentions. One is to diminish or put down excessive action. Another is to extinguish any excess of vital power. The third is to support the system in any case of debility. A fourth might be added, as the result of a combination or modification of these, which is, to correct any morbid determination by equalizing excitement. The great utility of this powerful agent, must, therefore, be evident. And every physician must see, that it will admit of more universal application than blood-letting or any other individual remedy. Varying its degree and duration, according to the demands of the intention, it will, therefore, be useful in colds, catarrhs, asthmas, pleurisies, &c.; in cramps, spasms, colics, cholera-morbus, &c.; in nervous headache, and all nervous affections; in habitual paleness or sallowness of complexion; in female complaints of a certain description; in scrofulous and other glandular and ulcerous affections; in excessive fatness, and in old age; in gout, rheumatism, and fever, &c. &c.

In a word, if an excess or diminution of vital power; if an increase or deficiency of action, with or without a morbid determination of excitability or excitement, must be present, in every possible mode of disease, it necessarily follows, that disease itself is a unit; and, therefore, that there must be in nature, some great and universal agent, which may be so modified as to be appropriate in every case. Heat may be so used. The pain of heat on the surface can safely extinguish vital power, and thus indirectly diminish the force of excitement. In an agreeable temperature, it is an universal cordial; and it can be made to have a diffuse tendency, and thus correct any morbid determination.

ADVERTISEMENT.

The preliminary remarks of the following appendix, are not intended to be personal. They are predicated upon general observation. Some facts, it is true, have occurred, which would justify particular notice. But I have not sought the names of hasty or inconsiderate men. Folly and vice, wherever found, should be exposed, for their correction. The author himself, may deserve an equal share. Honor to whom honor is due. I have given the names of a few, and I expect to add many worthies to my list before my labors are ended.

APPENDIX.

Having fully ascertained by a very great number of experiments, carefully made under my own observation, that a single decisive application of the patent, portable warm and hot bath, will almost invariably be effectual for correcting predisposition to disease; that by the same method, recent disease, when actually formed, may be cured in the same decisive way; that the treatment thus far requires no considerable part of skill but the necessary decision; no caution but such as common sense will dictate; and that in the hands of physicians it places within the reach of the healing art, many cases of disease which for ages have been a reproach to the profession. It, therefore, becomes a duty incumbent on me to take measures for bringing it into general use. Many difficulties oppose my purpose: but the neglect of a profitable establishment; absence from my family; labor, expense, &c. would be deemed inconsiderable, if I could be supported by the approbation of medical men—of that class of citizens, who ought, with open arms, to receive and with gladness give sanction to any discovery which promises so much for the alleviation of the sufferings of humanity. And it is truly a painful task to me to be under the necessity of exposing to the world, the various follies and passions which I am obliged to encounter.

It is well known to every man of observation, that the slow progress of improvement in the healing art, has had a peculiar effect upon many medical men. It has had injurious influence over the minds of some, who in every other respect deserve the highest estimation. It has imperceptibly produced a

strong predisposition to look back for authority however dark and absurd, rather than range the works of creation, or make patient observation upon facts, in search after truth. In too many instances it has insidiously infused a spirit of pedantry into the minds of those who are truly learned—and by the superficial this weakness is carefully imitated, because they find it is easier to put on the air of mystery and importance than to trace that labyrinth of investigation, whose outermost courts they have never explored. Others may be found, who, without an intention to be arrogant, consider themselves the oracles of their day, to whom the people ought to look for instruction. Improvements in the art to which they can have no claim, must, therefore, eclipse their importance; and with their pride thus piqued, without waiting to reason upon the subject, all their feelings are concentrated in a fixed resolution to put down the cause of their troubles. Such was the storm which was raised for the destruction of the great Sydenham of London! Such too the struggle intended to overturn the herculean labors of that great physician and philosopher who lately enlightened and graced the city of Philadelphia! Blinded interest too creeps in, and false fears of future loss are raised, so that every benevolent emotion is suppressed. Commiseration at human woe is no longer felt or felt in vain! This ruthless passion had rather witness destructive scenes of sickness, pain, and death, than hazard the possible loss of sordid gain. Surrounded by this host of opposing passions, I am nevertheless firmly supported by the reflection, that truth is necessarily imperishable. It may be opposed and even suppressed for a season, but it will ultimately break forth in all its native splendor, and enlighten the world. Such was the fact in the memorable Wilberforce's motion before the parliament of England, to put an end to the

slave trade. "It fell dead from his lips." Some thirty years afterwards it was taken up and this odious trade in human souls forever abolished.

I had flattered myself, that in a way undiscovered I should enlist a number of the faculty in my cause, before any thing like a new system should be suspected, and by this means secure the necessary support. As every physician must know the importance of heat in the cure of disease, and as all must have experienced the difficulties which attend its application in any ordinary way, I had no doubt that many would gladly avail themselves of the use of my apparatus. Could this plan have succeeded, they would have observed its effects, by which they would necessarily have been led to the adoption of those principles which I shall ultimately establish. I was the more ready to make calculations in this way, because I had already succeeded in securing the friendship of a few. But those suspicions, or oppositions, or jealousies which are common when any thing new is offered, have been excited, and it follows, that the fate of my work must be determined by the ordinary ordeal.*

I cannot conceal a blush for such of the fraternity as have said, for charity requires that I should admit that they believed as they said, "that warm water would do as well." Finding opposition likely to increase, I proceeded immediately to write a sketch of my system for publication, intending to make my appeal to those noble souls in the medi-

* I have met with some physicians in every place through which I have travelled, who have treated me politely. Doctor Welford of Fredericksburg, doctor Johnson of Manchester, and doctor Ward of Norfolk, deserve my thanks. Doctor Selden, of Leesburg, the only physician who has thought it worth his pains to wait on me at my lodging for an explanation of my system, on taking his leave, in the most ingenuous manner, offered himself as a friendly agent for his town and neighborhood: others will hereafter be added, as they become acquainted with my work.

cal world, who are ready to see and embrace the truth, and to call to my aid scientific men of every order in society. By this plan I calculated on being able to proceed in despite of opposition. It has been attended with considerable success, and would of itself ultimately produce the effect. Afterwards, however, I resolved on another expedient. As speedily as possible a few copies of my elementary principles, which had now been hastily struck off, were sent to gentlemen members of congress. Having the advantage of a personal acquaintance with Thomas Gholson, esquire, I forwarded one specially to him, accompanied by a letter, signifying the good effect it would have in the cure of diseases incident to the army.

Doctor James Tilton, physician and surgeon general of the armies of the United States, a man of much independent worth, happened to lodge in the same house with Mr. Gholson, and was immediately made acquainted with my views. In a few days the physician general obtained permission from the honorable John Armstrong, secretary of war, and I was invited to the seat of government. On my arrival I had the satisfaction to find that preparatory measures were already in train for the accomplishment of my wishes. The final arrangement and the result of the proceeding, will be seen in the sequel.

For this polite and highly respectable introduction to the city, and the agreeable facility with which I was permitted to negotiate the contemplated visit to the hospital at Norfolk, the honorable secretary of war and surgeon general, are entitled to my highest regard and most grateful acknowledgments. But they will receive a more lasting reward in the blessings which this system, aided by their patronage, will eventually secure to succeeding generations.

Washington City, April 7, 1814.

DEAR SIR,

Conformably to the orders of the secretary of war, you will be pleased to accompany doctor Adam Hays, an hospital surgeon, to Norfolk, in Virginia, and communicate to him and the surgeons generally, of that post, not only the principles of your newly invented *bath*, but the method of application: taking care not only to show the cases in which it may be applied to advantage, with the manner, duration, &c. but especially to guard them against the misapplication, so as not to bring an useful remedy into discredit.

Agreeably to the secretary's order, your account for expenses, &c may be presented at any time.

I am, dear sir, very respectfully,
Your most obedient servant,

(Signed)

JAMES TILTON, P. S. G.

May 5, 1814.

This may certify, that, in obedience to an order of the honorable secretary of war, and in conformity to the instructions of the physician and surgeon general of the United States, doctor Samuel K. Jennings has accompanied me at the post of Norfolk, Virginia, and satisfactorily demonstrated to me the principles and mode of making the application of his newly invented method of curing disease in a summary way, by the means of his patent, portable warm and hot bath.

(Signed)

A. HAYS, *hospital surgeon.*

Wilmington, (Delaware) July 16, 1814.

DEAR SIR,

Agreeably to your request, I have no hesitation in giving you my sense of the utility of your newly invented hot and warm bath, in the cure of diseases. I can only speak in general terms on a subject so novel; and, perhaps, the best method I can take for communicating my thoughts and reflections on the subject, is, by recounting the measures taken by the hospital department for the investigation of its usefulness.

Conformably to an order from the secretary of war, I was directed to make the necessary arrangements for your admission to the hospital at Norfolk. By the same order, I was directed to

send doctor Hays, an hospital surgeon of great respectability, to assist and be witness at the experiments. The doctor reported favorably, and in that correct manner which gratified the secretary of war, as well as myself. He particularly recommends it in regimental practice, "from the opportunity of meeting disease in its early stages." He recommends it in fevers, languid excitement of the surface, and diseases produced by suppressed perspiration. The doctor made experiments on about thirty cases, very much to his satisfaction, but has not exhausted the subject.*

I have seen the bath applied in a few instances; and have had it applied to my own person. The ease and facility of the application, and the delightful sensations it affords, are greatly in favor of its general use. And when we consider the nervous and sensible quality of the skin, and the importance of this emunctory, a flood of argument must arise, for the application of remedies to the surface of the body.

In the promised edition of your *explanations*, &c. besides the theory and direction for correct application, permit me to request that you will, by every possible precaution, guard us against the wrong application of so important a remedy.

With great respect, I am dear sir,

Your friend and humble servant,

JAMES TILTON.

Doctor S. K. Jennings.

The following certificates, from doctors John I. Cabell, Gustavus A. Rose, and William Owens, and from the reverend Wm. S. Reid, and others, at Lynchburgh, are highly important to my purpose. And whilst they do me credit they afford instances of candor and benevolence which will be duly appreciated.

Lynchburg, March 1, 1814.

DEAR SIR,

I take a pleasure in informing you that for the last five or six weeks, I have applied your portable WARM and HOT BATH

* Of these thirty cases, some were recent instances of inflammatory fever—cured by one or two applications. Some were chronic, say typhus fever, from seven to twenty days standing—in these convalescence was produced, some in one, others in two and three, up to eight days. Some recent cases of dysentery, and inflammatory rheumatism—cured by a single application. Some ladies' cases—in different circumstances—a change by one application. One a case of long standing, say three years, an irritation of the urethra—entirely relieved by two repetitions, &c. &c.

with evident good effect, on a great number of my patients—Indeed I think it a most valuable acquisition to the catalogue of medical agents. The principles upon which it is used, only want to be known to bring it into esteem and general use. Out of the many cases to which I applied it, for brevity's sake I will select the two following:

1. A case of hepatic state of fever.—This was a lady, who, before I was called on, had been treated in the usual way by her attending physicians—bleeding, cathartics, a blister on the part affected, antimonial mixtures, &c. had been tried.—I found her with cold extremities and surface; fixed pain about the region of the liver, attended with cough, general debility, and a feeble pulse. By the use of your bath, and a few small doses of calomel, with pectoral fibrifuges, she was soon restored to perfect health.

2. A case of inflammation of the stomach and bowels.—It was a desperate one.—This too was a female case, whom I found on visiting her, with cold extremities and surface, violent pain about the region of the stomach and upper bowels, with languor, faintness, and scarcely a perceivable pulse in the radial artery. In this situation she continued nearly two days, notwithstanding cordials, opiates, and cathartics, were administered, and a large blister was drawn upon the region of the stomach, and two upon the extremities. No passage could be procured, or general excitement raised on the surface. I applied your bath, and continued its application till a general diaphoresis was produced, and kept up for some hours, soon after which a passage was effected by ordinary means. I then used it periodically, so as to keep up the excitement on the surface till the patient was relieved. I confidently believe that this woman would have died, had it not been for the aid of your bath.

From yours respectfully,

JOHN I. CABELL.

DEAR SIR,

Having used your "*Portable Warm and Hot Bath*," with decisive advantage to several patients, I cannot but regret that any one should so far mistake your object as to suppose that you consider it a specific. Having for four years past received frequent communications from you, explanatory of your experiments and observations, upon the surface, and of the probable benefits to be derived from a more perfect method of applying heat, I am

in duty bound to offer you my little influence in opposition to any such illiberal insinuation. I know that your invention is the result of much philosophical inquiry, and promises great good to the community, as one powerful auxiliary in the cure of disease. And I know, moreover, that it may be so used, as, in many instances, pleasantly to supersede the use of other agents, which are loathsome in their administration, and, more or less, deleterious in their effects upon the system.

Permit me to narrate the circumstances which attended a single case, which I treated upon your principles. It was an instance of a most painful dismenorrhagia,* protracted to the length of five days, with frequent faintings, and continued watchfulness. On the fifth day she became perfectly delirious, with a pulse beating 120 in the minute, and her extremities cold. At this stage I was called in. I immediately exhibited an anodyne, which was rejected. An attempt was then made to compose her stomach with cordials, intended to be preparatory for the trial of another opiate. The attempt proved abortive. By this time three hours had passed away in painful anxiety, every moment hoping to see the stomach prepared to receive such agents as appeared to be necessary. Under these circumstances, I most willingly availed myself of the genial heat of your bath; first applying it to her lower extremities; and so soon as her feet were well warmed, removing it to her stomach, where its powers were concentrated, until a general but moderate diaphoresis† was induced. Before the operation was ended, the delirium went off, and the patient dropped into a pleasant sleep and rested composedly for the space of two hours.

An opiate was then exhibited, which was retained by the stomach. Medicines, such as are ordinarily used in these cases, were afterwards advised, and the bath was repeated the following evening. In ten minutes after the repetition of the bath the patient broke out uncommonly thick with the measles.

I was informed that she had been exposed to the cold for 12 hours, about the time she expected to be in delicate health, and the immediate effect was such as I have described. Till convinced by the fact, her friends were fully of opinion that she had the measles years ago. It is worthy of notice, that so completely was the surface abandoned by the excitement, so completely was the excitement locked up in the system, that she had none of the ordinary appearances which usher in the measles. Neither high fever, cough, nor sore throat attended her case. There was indeed, an alarming deficiency of animal heat;—and I am

* A disease peculiar to the mothers of mankind.

† Sweating or perspiration.

confident without the influence of artificial heat, to that extent, and with that decision which your bath only could have furnished, this patient would have died, and no one would have suspected the true nature of the disease by which her dissolution would have been effected.

Agreeably to your request I will endeavor to procure a history of the case of Mrs. Darnell, the lady you visited at Mr. Jefferson's plantation in Bedford.

I am yours, respectfully,

GUSTAVUS A. ROSE.

P. S. It is a certain fact, that the sleep was induced exclusively by the bath. The first anodyne dose was given in form of a pill, which was seen when it was thrown up.

G. A. ROSE.

Doctor S. K. Jennings.

Lynchburg, February 23, 1814.

DEAR SIR,

In addition to the case of relapsed dysentery cured by the warm and hot bath, which I related to you, I have had another fair opportunity of proving its utility in the same disease. Mrs. ——— when I was called to her, had been suffering two or three days under a severe dysentery, which succeeded the measles. Her pulse was small, and about eighty to the minute; skin collapsed, the discharge of blood and mucus pretty copious, with severe pain in the bowels, and constant and most distressing tenesmus. On using the bath her pulse became bold and tense, at which time I drew twelve or fourteen ounces of blood, after which she became easier, and remained so for a considerable time. At every return of severe pain, I had recourse to the bath, which afforded speedy relief. To maintain proper action on the skin, I applied the linimentum capsicum to the feet, and drew a large blister on the abdomen. In other respects, I treated her in the ordinary mode, but think the case would have proved fatal, had I not been in possession of some way of applying heat extensively to the surface. I have also used the bath with great benefit in colic, pleurisy, rheumatism, and catarrh.

Wishing you success in your researches after truth,

I remain yours, &c.

WILLIAM OWENS.

Lynchburg, February 22, 1814.

SIR,

We have been in the habit of using your patent, portable warm and hot bath in our family for several months, and are fully convinced of its convenience and utility. Its power to arrest the progress of disease of various kinds, we have satisfactorily proved. Under providence, it was the principal means of preserving the life of our youngest child, when apparently in the last stage of the *cholera infantum*.

In cases of measles, and pleurisy also, we have proved its efficacy.

Wishing you success in your exertions to alleviate human sufferings, I remain very respectfully yours,

WM. S. REID.

Doctor S. K. Jennings.

The following letter from general Preston, treasurer of Virginia, and certificate from colonel John Ambler, one of the most respectable citizens of Richmond, afford a weight of testimony which no candid man can resist.

Richmond, March 26, 1814.

DEAR SIR,

I should be wanting in justice to you, not to inform you what effect the application of your portable warm and hot bath had upon me, in a paroxysm of the rheumatic gout. The attack was in my ankle and heels of both feet, and the great toe of the right. During three days, the pain increased, and with such violence, that I was in the most extreme agony.—In the height of this extremity, my brother, colonel Francis Preston, came in to see me and proposed, rather jocosely, that your apparatus, which was just then beginning to be spoken of in the city, should be introduced to try its effect.—As every other of the usual applications, such as fomentations, rubefacients, camphire, &c. had failed, I consented, though without any high expectation, or much confidence, but like other persons in great pain, was willing to try almost any thing which is prescribed for relief.—It was accordingly introduced and applied, and in about forty minutes, before one cup of the burning ardent spirit was consumed, it procured a complete remission of the pain—I fell into a sound sleep which continued nearly seven hours; and when I awoke, was so far restored that I felt an inclination, and thought I had the ability to ride in a carriage for exercise, which I would

have attempted, if the weather had been favorable. On every return of the spasms, which after the first application of the bath grew weaker, I used it as seemed agreeable: and, with one exception, which I now attribute to an injudicious application, it never failed to produce relief. Its utility in such complaints, indeed in all inflammatory diseases strikes me most forcibly. I have no doubt that my cook was rescued from a severe fit of pleurisy, to which she is subject, by a timely and judicious application of your hot and warm bath. She was completely restored to her usual health in two days.

With sentiments of high regard,
I am, dear sir, your obedient servant,

J. PRESTON.

Doctor S. K. Jennings.

Richmond, March 14, 1814.

DEAR SIR,

For some weeks past, I have made use of your steam bath, in cases of cold and fever, where there have been evident marks of violent inflammation, attended with great pain. In each of these instances the patient has been relieved within a few hours.

I have also used it in a cutaneous complaint of long standing; although the disorder is not removed, still the general health of the person has been evidently improved from the use of the bath.

I am, respectfully,

Your friend and most obedient servt.

J. AMBLER.

Doctor Samuel K. Jennings.

The three following cases are inserted because they occurred in the city of Baltimore. Travelling citizens on inquiry, may know the particulars in detail.

Baltimore, July 20, 1814.

DEAR SIR,

In compliance with your request, I send you an account of three cases in this city, in which your patent, portable bath has been most decisively effectual.

First—Mr. Van Wick, Gaystreet, a gentleman well known and respectable, had long labored under that painful affection,

rheumatic gout. It had fixed upon the hip and foot of one side. The bath was used twelve times, when he was freed from pain. The swelling which had been considerable was subsided, and he can now walk with activity and ease.

A second—Mrs. Taylor, wife of Mr. Lemuel Taylor. A case of rheumatism, affecting her shoulder, neck, and head. Mr. Taylor, when he made application to me, observed that he did so to oblige his wife; for himself, he had no expectation from the bath. With two applications she was perfectly relieved.

A third—Mrs. Winard, wife of Mr. Winard, a merchant taylor of this city. A case very similar to that of Mrs. Taylor—cured by one application.

I could add many more cases in detail; but to be brief, I must say in justice to your invention, that I have proved it to be the most appropriate remedy in all cases of lumbago, rheumatism, gout, and palsey, &c; and there can be no doubt but it is the happiest discovery of the age.

I am a friend to the public, and

Your most obedient servant,

DANIEL HALL.

Doctor Samuel K. Jennings.

The following list of letters and cases, are added chiefly for sake of the variety which they present, affording additional explanation and instruction, and not for the testimony which they adduce.

DEAR SIR,

I should consider myself wanting in gratitude, if I did not communicate the happy effects resulting from an application of your portable bath. My little daughter was suddenly seized in the night with a fit of the croup, which threatened immediate suffocation. I had recourse to the ordinary mode of bathing, which afforded but temporary relief. She continued with a high fever all next day, with threatening symptoms of relapse. In the evening I applied your bath with such success, that in a little more than one hour she was entirely relieved both of fever and all symptoms of spasm.

S. SCHOOLFIELD.

Doctor S. K. Jennings.

Iynchburg, January 7, 1814.

SIR,

Encouraged by the successful use you made of your steam bath, in the case of my wife, when ill of the child-bed fever, I

have since tried it upon a negro boy, who was taken with a violent cold, attended with pains, so that he could scarcely move his legs. I repeated the bath several times. From the first application he began to mend, and he recovered in a very few days, so as to be able to walk about

Respectfully, I remain yours,

CHRISTOPHER WINFREE.

Doctor S. K. Jennings.

Lynchburgh, January 7, 1814.

DEAR SIR,

I feel it my duty to inform you that my wife who had been for many years much indisposed, subject to frequent attacks of violent colds, and when at her best, suffering almost daily attacks of chills and fevers, has tried your patent, portable bath with the most happy effects. Upon three applications she is perfectly restored to her health. It may be proper for me to state, that she is 63 years of age.

I am yours sincerely,
WM. P. MARTIN.

Doctor S. K. Jennings.

Lynchburg, January 30, 1814.

DEAR SIR,

My little son was extremely ill of a bowel complaint. Ordinary medicines were tried in vain; and I had nearly despaired of his life.—The bath was recommended and tried—its effect was so decisive, that by-standers could perceive the immediate amendment, and the child recovered, having received a single application only.

I am yours, &c.

ARMISTEAD TRUSLOW.

Doctor S. K. Jennings.

I visited a negro man, the property of Mr. Charles Wingfield, of Amherst, at the close of last summer. He was affected with a pain in his breast, and very difficult respiration, inso-much that he could not possibly have survived many hours. He had been twice bled the same day, and taken physic without any relief. The patent bath was applied with the most decisive effect. In fact, a single application completely corrected every dangerous appearance, and the man recovered in a few days.

I made the same application to Mrs. Day, an elderly and respectable lady of Amherst county. She had been exposed to the weather, was affected with chills and stupor, so that she scarcely observed any thing that was going on, not even the application

of the steam. She was relieved at once, and the next day was on her feet.

Captain James Stewart, of Lynchburg, had a negro man who was taken down with a very severe dysentery. I waited on him with my portable bath. The case was serious, and required a continuance of the application of doubly the usual period. A profuse perspiration was at length induced.—After the operation of the bath, I gave him a few drops of laudanum, once every sixth hour. The fourth day afterwards, he was able to go into the field and sow wheat.

Mr. Isaac Gregory, of Lynchburg, was cured of a chronic diarrhoea of three months standing, which came upon him at Camp Holly. Towards the close of this period he took the measles, which increased his disease. After blood letting he was effectually bathed one night, and became immediately convalescent.

Miss Bradley, formerly of the vicinity of Lynchburg, now of Buckingham county, was cured of an autumnal ague, at the house of captain William Evans, by two applications of the bath.

One of Mr West's blacksmiths was cured of a violent case of relapsed pleurisy, in one night. The bath was twice repeated only. He became immediately convalescent, and began to work the following week.

Mrs. Butt, near the governor's, was cured of a very severe attack of pleurisy, without blood-letting. The first visit was made on Saturday evening. On Monday she was able to sit up and do business.

Mrs Adams, of Adams' valley, was relieved in a very few days of a case of puerperal fever, induced under circumstances the most untoward. She had several severe convulsions. The bath never failed to correct the ill appearances, and she was cured in one third of the time ordinarily requisite in such cases.

Mr Billups, a member of the legislature of Virginia, was relieved of a violent attack of asthma, accompanied with appearances highly inflammatory, by a single application of the bath, preceded by one blood-letting.

Mrs Webb, on Shockoe Hill, was relieved in a few days of a most severe attack of hereditary gout, which had affected her head and nerves to an alarming degree. This case was very extraordinary.

Mrs. Smith, the lady of captain Francis Smith, of Chesterfield, was rescued from death chiefly by this remedy.

A case of asthma.—An elderly lady, considerably inclined to anasarcaous appearances. The bath was used twice a day, sometimes more, for three months.

THE UNITED STATES OF AMERICA:

TO ALL TO WHOM THESE LETTERS PATENT SHALL COME.

WHEREAS, SAMUEL K. JENNINGS, a citizen of the United States, hath alleged, that he has invented a new and useful improvement, being *A Portable Warm and Hot Bath*; which improvement, he states, has not been known or used before his application; hath made oath that he does verily believe that he is the true inventor or discoverer of the said improvement; hath paid into the treasury of the United States the sum of \$30, delivered a receipt for the same, and presented a petition to the secretary of state, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:—These are therefore to grant, according to law, to the said Samuel K Jennings, his heirs, administrators or assigns, for the term of fourteen years, from the twenty-first day of January, one thousand eight hundred and fourteen, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement; a description whereof is given in the words of the said Samuel K. Jennings himself, in the schedule hereto annexed, and is made a part of these presents.

(I. S.) In testimony whereof, I have caused these letters to be made patent, and the seal of the United States to be hereunto affixed.

Given under my hand at the city of Washington, this twenty first day of January, in the year of our Lord one thousand eight hundred and fourteen, and of the independence of the United States of America, the thirty-eighth.

JAMES MADISON.

By the president,

JAMES MONROE, *secretary of state.*

City of Washington, to wit:

I do hereby certify, that the foregoing letters patent were delivered to me on the twenty first day of January, in the year of our Lord, one thousand eight hundred and fourteen, to be examined; that I have examined the same, and find them conformable to law; and I do hereby return the same to the secretary of state, within fifteen days from the date aforesaid, to wit: on this twenty-first day of January, in the year aforesaid.

WILLIAM PINKNEY,

Attorney general of the United States.

The schedule referred to in these letters patent, and making part of the same, containing a description in the words of the said Samuel K. Jennings himself, of his portable warm and hot bath,

Is an apparatus, which is to be used as a stove and pipe, to convey the heated gas arising from burning ardent spirit, to the body of the patient sitting in a chair, or lying on a bed, couch, sofa or cot, and covered sufficiently, so as to retain the heat, agreeably to the intended temperature of the bath.

It may be made of tin, sheet-iron, copper or lead or wood, &c. A cup of suitable diameter, containing a proper quantity of warmed ardent spirit, is placed in the stove, the pipe of which is introduced under the bed clothes or covering of the patient; the spirit is to be set on fire; the gas ascends as smoke in a chimney, and is conveyed to its destination by the pipe of the stove.

SAMUEL K. JENNINGS.

Witnesses,

REUBEN PERRY,
JNO. F. LAMB.

To prevent any person from hazarding the consequences of a prosecution for a violation of the rights of my patent, I here subjoin the second section of the patent law, vol. 2, Laws United States, page 201, viz.:

“ Provided always, and be it further enacted, That any person who shall have discovered an improvement in the principle of any machine, or in the process of any composition of matter, which shall have been patented, and shall have obtained a patent for such improvement, he shall not be at liberty to make, use, or vend, the original discovery, nor shall the first inventor be at liberty to use the improvement: And it is hereby enacted and declared, THAT SIMPLY CHANGING THE FORM OR THE PROPORTIONS OF ANY MACHINE, or composition of matter in any degree, shall not be deemed a discovery.”

The damages recoverable for any offence, may be ascertained by a reference to the 5th volume Laws United States, chap. xxv, page 89:

“ Any person, without the consent of the patentee, his or her executors, administrators, or assigns, so offending, &c. such persons shall forfeit and pay to the said patentee, his executors, administrators, or assigns, a sum equal to three times the actual damage sustained by such patentee, which sum shall and may be recovered, by action on the case, founded on this and the above mentioned act, in the circuit court of the United States, having jurisdiction thereof.”

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